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NOTE ON FROZEN GLYCERIN.[1]

By Wallace Procter, Ph.G.

Having occasion to empty a 50 lb. case of glycerin, during the early part of April, I found, to my surprise, that half the contents of the can was a mass which, on examination, seemed to possess a crystalline structure of great toughness and solidity. Suspecting an adulteration, tests for glucose, as the most probable, were first applied, but with a negative indication.

On applying to the party from whom the glycerin was purchased, I was informed that the whole of a large consignment, received from abroad, was more or less "frozen," as it is expressed technically. The statement was also made that, in the course of twenty years' extensive dealing in glycerin, only once previously had it been observed in this condition, and that some three years ago. It was of the nitro grade, such as is used in the manufacture of nitroglycerin, and almost without water. The article in question was not sold as the finest quality, but as a second grade, though comparing favorably in appearance and freedom from odor with any usually to be procured.

A further and more critical examination was made, with the following results—specific gravity of unfrozen portion, at 15·5°C., 1·235 to 1·237.

A portion, heated to 100°C. for ten minutes with an equal volume of sulphuric acid, gave but a very slight coloration; warmed with diluted sulphuric acid, an appreciable but very faint butyric odor was developed; when diluted with distilled water, test solution of silver nitrate produced no cloudiness after standing some hours. As before stated, the absence of sugars was also determined.

These results seemed to conclusively prove that the phenomenon was inherent with the glycerin itself, and not caused by any admixture or impurity.

[1] Read at the Pharmaceutical Meeting, held May 19th, 1885.

I was aware that two instances of the kind had been observed, and were commented on in a foot-note in the U. S. Dispensatory, 15th edition, p. 711; but, as I had never seen the substance in the solid state, my first impression was but natural. A specimen of the mass was removed from the can and preserved in a wide-mouthed bottle; this was placed in a refrigerator. It was brought to the college on April 21st, to be shown at the pharmaceutical meeting called for that day, but which, for lack of attendance, did not come to order. On that occasion more than half of the solid contents of the bottle melted, but a re-exposure to the temperature of an ordinary refrigerator has again caused crystallization. The crystalline structure is beautifully defined, as may be noted in the bottle presented, which I have packed in a freezing mixture to insure the preservation of that form.

The melting point, roughly ascertained, is between 21°C. to 26°C., or 70°F. to 80°F.

When completely melted and exposed to the temperature of a mixture of ice and salt for an hour, no signs of "freezing" were observed. Whether a longer period would cause recrystallization I am unable to say.

If the sp. gr. were higher, it would the more readily suggest that a state of almost complete dehydration was the most reasonable explanation of the phenomenon; but here we have ·013, or ·015 less than the officinal standard glycerin, which during my acquaintance with its properties has not been observed to "freeze." Since writing the above an accurate determination of the sp. gr. of the melted crystals reveals the fact that the portion which actually solidifies has really a high percentage of glycerin as indicated by the sp. gr. 1·2618 obtained by Prof. Trimble.

Aquæ Aromaticæ.—Mr. R., in a communication to the "Centralhalle," recommends to dissolve 15 drops of the best quality of essential oil in 4 Gm. of alcohol (95 per cent.), and to use 1 drop of such an essence to 10 Gm. of distilled water. Medicated waters prepared with alcohol soon turn sour; therefore a large stock of them should never be kept on hand, but it is more economical and convenient to prepare them extemporaneously as stated. Mr. R. speaks very highly of the orange-flower water prepared with such an essence, and distilled from a glass retort.

NOTE ON GLYCERIN.[1]

By Henry Trimble.

In the April number of this Journal, page 173, is an abstract on the use of glycerin vapor in throat troubles. The question has arisen, whether or not the vapor of glycerin would be given off when used as there recommended, by heating in a porcelain capsule, or whether the irritating decomposition products would be evolved. To determine this about 50 grams were heated in a capsule, with a thermometer dipping into the liquid. The temperature was allowed to rise very slowly with the following results: At 92° C. vapor could, with some difficulty, be seen rising; at 100° C. it was very perceptible; at 130° it was abundantly given off, rising as a dense white smoke. This vapor was almost odorless, without the slightest irritation, and tasted sweet when drawn into the mouth. This evolution of vapor continued without the liquid in the capsule becoming dark until a temperature of 234° C. was reached. At 264° there was a slight boiling, but the glycerin had so nearly all vaporized that the experiment was discontinued. The room was so filled with vapor that one could not distinguish objects clearly 10 feet away, yet none of those working there experienced any irritation or other difference except the sweetish taste on drawing air through the mouth. This experiment was repeated with the same result, and shows that when exposed to the air with a gradual application of heat glycerin will entirely vaporize with little or no decomposition. I am aware that a strong heat will cause it to boil and ignite in an open capsule.

Another experiment was tried by placing a large quantity of glycerin in a flask attached to a condenser. The flask was placed in a sand-bath and heat gradually applied. No change was observed, except a very small amount of vapor which condensed on the sides of the flask, until 174° C. was reached when ebullition began. A small amount of a disagreeable smelling liquid came over, which proved to be water and a small quantity of glycerin, with sufficient decomposition products to impart the odor. This moderate boiling continued with no further change, until at 274° C. the flame was removed, as it was evident the boiling would continue with greater decomposition as the temperature

[1] Contribution from Chemical Laboratory of Philadelphia College of Pharmacy.

increased. Only a small quantity of distillate was obtained. The glycerin used in these experiments had a specific gravity at 15° C. of 1·257, and otherwise came up to the requirements of the Pharmacopœia.

The statement has been made (*Gerlach*, "Zeitschrift für analytische Chemie," 24, 110) that absolute glycerin, specific gravity 1·2653, boils at 290° C., and that 95 per cent. glycerin, sp. gr. 1·2526, boils at 164° C. This practically corresponds to the experience above given, as very small differences in specific gravity make widely different boiling points.

In view of these facts it is evident that the boiling point given in the Pharmacopœia should be *not below 164° C*, instead of 290° C. which is for absolute glycerin.

CHOCOLATE.

By James Hervy Hagenbuch, Ph. G.

Abstract from an Inaugural Essay.

There are several different ways of preparing chocolate. The best, and the one most generally used, is to take chocolate nibs (which are the seeds deprived of their outer covering) and grind them to a smooth paste in a mill with rollers, which are heated by passing steam into them by means of a pipe. To this paste the sugar and flavoring substances, principally vanilla or cinnamon, are added, and the whole reduced to a homogeneous mass, is moulded into cakes ready for the market. The heated rollers are used because they melt the fatty substance in the "nibs," and thus facilitate the making of the paste.

Unadulterated chocolate is compact, brittle, breaking with a smooth fracture, has a dark reddish brown color, and forms a perfectly homogeneous mass when worked into a paste. It should dissolve easily in the mouth, without leaving any gritty particles behind. The adulterations are very numerous, being composed principally of potato starch, flour, earthy matter, paraffin, tallow, lard, and other animal fats. Though nearly all the different kinds of chocolate contain starch it is nevertheless considered an adulterant. It makes a heavy and indigestible compound, because starch, unless boiled, is far from being digestible. Blythe says that it is considered an adulterant because it contains no nitrogenous principles, which are the main, and most valuable parts of the cacao, the principal ingredient of chocolate.

If this were the case, sugar also would be considered an adulterant, for it contains no nitrogen. There are certainly other reasons; one most likely is the solubility of sugar and insolubility of starch.

The chocolates are either sweet or bitter. The sweet chocolate is used mainly by the confectioners in making the different kinds of chocolate candies. When they use it for coating the chocolate drops it is sometimes adulterated with paraffin, which gives them their shiny appearance. The bitter chocolate is used principally as a nutritious drink; as a nutritive it stands much higher than either tea or coffee. Owing to the large quantity of fatty matter present in some brands, it is with all its nutritive powers apt to disagree with persons having very delicate stomachs.; for this reason the English claim that the expression of the oleum theobromæ from the seeds, makes them better for the manufacture of a chocolate, which is more easily digested, and though the oil is extracted still contains the active principles.

From several Philadelphia manufacturers of chocolate, specimens were obtained for examination. These were first exhausted with ether to remove all the fatty ingredients. The residue was next treated with twenty per cent. alcohol, and allowed to stand twenty-four hours to remove the sugar. The remaining residue was boiled in water, the liquid filtered through charcoal, and the starch precipitated with fifty per cent. alcohol.

From Baker's chocolate was obtained the greatest amount of fatty matter, it containing 45·8 per cent. which fused at 36° C. (96° F.), this being near the fusing point of pure cacao butter. It contains twenty-eight per cent. of sugar, some starch, and 3·1 per cent. of ash.

C. and A.'s contained 35½ per cent. of fat, which fused at 38° C. (100° F), this being about 5° F. higher than the melting point of cacao butter; sugar, starch, a substance insoluble in cold or hot water, or hydrochloric acid, and 2·75 per cent. of ash were found.

E.'s cocoa contained thirty-eight per cent. of fat which fused at 37° C. (98° F.), sugar nearly forty per cent., starch eighteen per cent., and an insoluble substance. The ash was 2·3 per cent.

W.'s plain commercial chocolate, contained 26·5 per cent. of fat, which fused at 36° C. (96° F.), sugar forty-five per cent. starch, and 2·2 per cent. ash.

W.'s sweet chocolate had but twelve per cent. of fat, and this fused at 38° C. (100° F.), nearly sixty per cent. of sugar, and 1·7 per cent. of ash.

A. & M.'s brand "A" contained twenty-six per cent. of fat, sugar, starch, and a quantity of coloring matter.

A. & M.'s powdered chocolate, contained fourteen per cent. of fatty matter, which fused at 39° C. (102° F.), sugar, and 4·4 per cent of ash.

ILLICIUM FLORIDANUM, Ellis.

Natural order, Magnoliaceæ Illicieæ.

By Henry C. C. Maisch, Ph.G.

From an Inaugural Essay.

(Continued from page 228.)

CHEMICAL INVESTIGATION.

The analytical researches were made in the chemical laboratory of the Philadelphia College of Pharmacy. The parts of the plant were taken in No. 80 powder, and the estimations were made on the plant as obtained and not previously dried by artificial means.

Leaves.—The moisture of the leaves was determined to be 13·75 per cent. The same portion was used for estimating the ash which amounted to 5·033 per cent. The solubilities of the ash were as follows:

Soluble in water	1·600
Soluble in hydrochloric acid	2·500
Insoluble in either (silica)	0·933
	5·033 per cent.

The qualitative analysis resulted as follows: Acids, carbonic and phosphoric; Bases, potassium, sodium, aluminium, iron and calcium.

1. Petroleum extraction.—A portion of the powder was macerated with petroleum spirit (boiling point below 45°C.), the quantity being 1 gm. to 10 cc., which proportion was retained throughout the whole analysis. The percentage of residue remaining on spontaneous evaporation of a portion of the liquid was found to be 2·60, of which, on being heated, 0·23 was lost. This loss was estimated as volatile oil, because, on heating, the extract became entirely odorless. The reactions of this volatile oil are given under "Capsules," as the yield there was greater. The extract was not saponified by either aqueous or alcoholic solution of potassium hydrate. The latter solution was precipitated by the subsequent addition of water. The odorless residue amounted to 2·37 per cent.

2. Ether extraction.—The powder was next treated with the requisite quantity of ether. A part of the resulting liquid was evaporated and

the residue found to amount to 1·46 per cent., which lost nothing on heating to 110°C. The residue from another portion was treated with water, which acquired a bitter taste; the dissolved principle will be treated under the alcoholic maceration as this dissolved a larger quantity. The residue from the ethereal solution was completely soluble in strong alcohol, chloroform, benzol, aqueous and alcoholic potassium hydrate solution. The alcoholic solution was precipitated by distilled water and also by acidulated water. The extract was principally resin.

3. Absolute Alcohol maceration.—The residual powder from the above maceration was treated with the necessary quantity of absolute alcohol. The dried extract was equal to 5 per cent., which lost nothing on heating to 110°C. The air-dried residue was treated with water heated slightly and allowed to macerate for 24 hours. The water had assumed an acid reaction and a yellow color which was turned to a yellowish brown by ammonia water. The portion soluble in water amounted to 4·29 per cent. The aqueous solution was acidified and shaken with petroleum, benzol and chloroform. The liquid was afterward made alkaline and shaken with the same liquids, ether being used in addition. Most of the residues were crystalline.

In order to obtain a larger quantity of the crystals 75 grams of the drug were treated with 95 per cent. alcohol. This tincture was evaporated to a small bulk and precipitated with water. The filtrate obtained was shaken with petroleum, benzol and chloroform. The residue from the petroleum was entirely soluble in aqueous sodium hydrate solution, and after neutralization with hydrochloric acid a precipitate of a brownish color formed. The aqueous solution was then acidified and shaken with the liquids mentioned above. The residues from benzol and chloroform had a bitter taste, a neutral reaction and a crystalline structure. The same crystals were also found after the acidified aqueous liquid had been made alkaline and at that place the reactions are also given.

The precipitate obtained from the alcohol was boiled with dilute acid and this liquid shaken as above, and also after it was made alkaline. The residues consisted of a yellow resin neutral to test paper.

The undissolved precipitate from above was boiled with potassium hydrate solution and this shaken with the same liquids noticed above. The residue from the petroleum shaking consisted of a soft resinous mass and of colorless crystalline plates, the whole having the odor of orris root. The crystals were freed from adhering resin by a few

drops of alcohol. This liquid, like the dry resin, gave a green color with sulphuric, hydrochloric and nitric acids, the degree of intensity being in the order as enumerated, sulphuric acid giving the stronger color. Sodium hydrate dissolves but does not saponify the resin.

The crystals gave no precipitates with alkaloidal reagents, and did not produce any ammonia on heating with potassium hydrate. After boiling with dilute acid, they reduced alkaline copper solutions. The following are the reactions obtained for this principle: Sulphuric acid dissolved it in the cold without color, but on warming, the color became carmine-red. It gave no reaction with hydrochloric acid or nitric acid. Sulphuric acid and bichromate of potassium (Otto's test) gave in the cold a brownish yellow color, which on heating was changed to green. Sugar and sulphuric acid (Schneider's test) gave no color in the cold, but on warming the color is first light brown and rspidly darkens by the caramelizing of the sugar, while all through the reaction red spots are visible. Froehde's test (molybdate of ammonium and sulphuric acid) gave first a green color, and on heating slightly the color was rapidly changed to a dark blue. These reactions show the principle to be different from Eykman's sikimin, which does not reduce Fehling's test, even after boiling with dilute acid. From the reactions noted above, the crystals were regarded as those of a glucoside to which the bitter taste of the leaves is due. The crystals amounted to about 0·75 per cent.

The residues from benzol and chloroform shakings were of a dark green color and soluble in alcohol. The alcoholic solution was clouded by the addition of water, and further by a few drops of hydrochloric acid. The same solution gave with sulphuric acid a green liquid and a brown precipitate. The same reaction was obtained with hydrochloric and nitric acids; but, if heat be applied to the test with sulphuric acid, it becomes of a purplish color and ultimately chars; if the liquid with nitric acid is treated in the same manner, the precipitate becomes yellow and the green color is discharged; if to the hydrochloric acid test a few drops of nitric acid be added, the color is changed to red and ultimately to red-brown. If a quantity of the dry extract (resin) be heated in a glass tube open at both ends, it gives a reddish brown sublimate, inflammable vapors and a residue of charcoal. The shakings of the acidified alkaline solution gave nothing but resin.

4. Aqueous Extraction.—The powder from the above maceration

was treated with the required quantity of water which formed a thick mucilage; it was therefore diluted to allow of straining, and by evaporation brought to the first quantity when the liquid was thinner and permitted filtration. There was about 6·335 per cent. of precipitate present, which was regarded as albuminous matter. The liquid was then treated with twice its quantity of 95 per cent. alcohol, which gave a precipitate amounting to 4·75 per cent. The precipitate from the filtrate by lead acetate was yellowish brown in color. This was separated, suspended in water and decomposed by hydrogen sulphide. The filtrate from this precipitation was evaporated to drive off hydrogen sulphide, this liquid then gave precipitates with barium and calcium hydrates, and a green color with ferric chloride; it was also precipitated by gelatin solution, by which means it was estimated. The tannin present amounted to 3·96 per cent.

5. Alkaline Extraction.—The powder was next treated with a 0·2 per cent. solution of sodium hydrate. The dissolved portion amounted to 9·9 per cent.

6. Acid Maceration.—The insoluble portion of the leaves was then treated with diluted 2 per cent. hydrochloric acid. The extract amounted to about 6 per cent.

The remaining, undissolved portion was bleached and weighed. It amounted to 42·6 per cent. This was regarded as lignin.

Stem.—The moisture and ash of the stem, as in the case of the leaves, were estimated from the same portion of the powder. The moisture amounted to 10·16 per cent. and the ash to 1·333 per cent., the small amount of ash being probably due to the large amount of sclerenchyma.

The solubilities of the ash are as follows:

Soluble in water.	·033
Soluble in hydrochloric acid.....	1·067
Insoluble in either.....	·233
	1·333 per cent.

The qualitative analysis gave the following result: Acids, sulphuric and hydrochloric; Bases, magnesium, potassium, sodium, iron.

1. Petroleum maceration.—The powder was macerted with the necessary quantity of petroleum, the portion soluble herein amounted to 0·19 per cent. which lost nothing on heating to 110°C. The residue was soluble in ether, tasteless, unsaponifiable by either alcoholic or aqueous solution of potassium hydrate.

2. Ether extraction.—The powder was next treated with ether. The portion soluble in ether amounted to 0·23 per cent. The extract was soluble in alcohol, and in aqueous and alcoholic solution of sodium hydrate. Its reactions show it to be an acid resin.

3. Absolute alcohol maceration.—Absolute alcohol was the next solvent used for maceration. The soluble portion amounted to 1·9 per cent., of which 1·687 was soluble in water, ·211 soluble in dilute ammonia, leaving ·002 as insoluble in either. The extract was astringent but not bitter. Tannic acid was present to the amount of 0·54 per cent.

4. Aqueous extraction.—The powder remaining from the foregoing macerations was treated with the necessary quantity of water. The precipitate obtained by the addition of alcohol amounted to 1·8 per cent. There was an acid present, but on account of decomposition of the liquid it could not be estimated, although the reactions show it to be tannic acid.

5. Alkaline extraction.—The powder was next treated with a 0·2 per cent. solution of sodium hydrate. A part of this solution was neutralized with acetic acid and subsequently alcohol added; the resulting precipitate amounted to 0·9 per cent; the total extract being equal to 5 per cent.

6. Acid maceration.—The powder insoluble in the above extractions was next treated with diluted hydrochloric acid of about 2 per cent. strength. A portion of this liquid was neutralized with ammonia. The resulting precipitate amounted to 0·24 per cent., the total extract amounting to 1·88 per cent. and containing some iron. The remaining insoluble powder after bleaching weighed 64·005 per cent.

Root bark.—The moisture of the bark amounted to 13·865 per cent. and the ash to 5·7 per cent. The solubilities of the ash were as follows:

Soluble in water	·334
Soluble in hydrochloric acid	2·833
Insoluble in either (silica)	2·533
	5·700 per cent.

The qualitative analysis resulted as follows: Acids: sulphuric and phosphoric; Bases: aluminium, calcium, magnesium, potassium, sodium.

1. Petroleum extraction.—The powder was extracted with petroleum as in the previous analyses. The soluble portion amounted to 2·60 per cent., of which 0·11 per cent. was volatile oil and the remainder 2·49 per cent. fat and a crystalline principle. The latter melts at 110°

C.; the same was also found in the capsules. The crystals were insoluble in alcohol and ether, but soluble in chloroform, and were neutral to test paper.

2. Ether maceration.—The powder was next treated with the necessary amount of ether. The extract amounted to 0·66 per cent., and consisted of resin.

3. Absolute alcohol treatment.—The powder was next treated with the requisite quantity of absolute alcohol. The soluble portion amounted to 12·2 per cent. The dry extract was soluble, as follows: 7·625 per cent. in water, 4·275 per cent. in dilute ammonia, and 0·3 per cent. insoluble in either. The aqueous solution contained tannin amounting to 5·4 per cent. The dilute ammonia dissolved the resin, which was of a ruby-red color and precipitable by neutralization with acetic acid.

4. Aqueous extraction.—The powder insoluble in the foregoing was treated with the necessary quantity of water. This mixture was diluted on account of the mucilage present and filtered. Alcohol gave a precipitate which amounted to 4 per cent., and on condensation alcohol precipitated 3 per cent. more. The total extract amounted to 8·96 per cent.

5. Maceration with diluted alkali.—The powder was next macerated with a 0·2 per cent. solution of sodium hydrate. The total extract amounted to 10·510 per cent., of which 9·605 per cent. was precipitated by alcohol and acetic acid to neutralization.

6. Treatment with diluted acid.—The powder insoluble in the foregoing extractions was treated with diluted 2 per cent. hydrochloric acid. The soluble portion amounted to 8 per cent. The remaining insoluble powder amounted to 42·625 per cent.

Capsules.—The moisture in the capsules amounted to 10·833 per cent. and the ash to 3·5 per cent. The solubilities of the ash were as follows:

Soluble in water	2·333
Soluble in hydrochloric acid	·467
Insoluble in either	.700
	3·500 per cent.

The qualitative analysis resulted as follows: Acids: sulphuric and phosphoric; Bases: copper, magnesium, iron, aluminium, potassium, sodium.

1. Petroleum treatment.—The powder was exhausted with petroleum. The soluble portion amounted to 1·25 per cent.; 0·5 per cent. was volatile oil and 0·75 per cent. was wax and a crystalline principle.

The crystals melt at 110° C. and are identical with those found in the root bark. The volatile oil is aromatic and pleasant, resembling in odor a mixture of bergamot and orange flower oils. The reactions are as follows: Strong sulphuric acid added to a chloroform solution gave a greenish color which changed to a purplish-red; ferric chloride and sulphuric acid gave a light green color, which gradually changed to brown and red brown.

2. Ether extraction.—The portion insoluble in petroleum spirit was treated with ether. The soluble portion amounted to 1·1 per cent., of which 0·2 were crystals and 0 9 resin. The extract is partly soluble in potassium hydrate and is precipitated on neutralization. The crystals have a bitter taste and the reactions obtained show it to be identical with the glucoside from the leaves.

3. Treatment with absolute alcohol.—The powder was next treated with absolute alcohol. The total extract amounted to 9·25 per cent., of which 6·125 per cent. was soluble in water. The glucoside was only found in the etherial solution as it existed only in a minute quantity.

4. Aqueous maceration.—The powder insoluble in the foregoing was treated with the requisite quantity of water; in this case double the quantity was used, making the proportion 1:20. The precipitate by alcohol amounted to 2·48 per cent. The total extract was 7·48 per cent.

5. Alkaline extraction.—The powder was next treated with 0·2 per cent. solution of sodium hydrate. The portion soluble amounted to 4 per cent., of which 1 per cent. was precipitated by alcohol and acetic acid to neutralization.

6. Treatment with diluted acid.—The insoluble powder from the last treatment was treated with diluted 2 per cent. hydrochloric acid. The total extract amounted to 2·6 per cent., about 1 per cent. was precipitated by ammonia and consisted mostly of iron. The remaining insoluble powder after bleaching amounted to 62·3 per cent.

Seeds.—The moisture of the seeds amounted to 7 per cent. and the ash 2·222 per cent., the solubilities of which were as follows:

Soluble in water	·334
Soluble in hydrochloric acid	1·444
Insoluble in either (silica)	·444
	2·222 per cent.

The qualitative analysis resulted as follows: Acids: sulphuric, hydrochloric and phosphoric; Bases: iron, aluminium, magnesium, potassium, sodium.

1. Petroleum maceration.—The powdered seeds were extracted with petroleum. A portion of the liquid on evaporation left a residue amounting to 35·8 per cent. and consisting of fixed oil. This is bland, without odor, has the specific gravity 0·903, and is saponified by alcoholic and aqueous potassium hydrate solution. Sulphuric acid has no action on it; nitrous acid converts it into elaidin.

2. Ether extraction.—The powder was next treated with ether. The dried extract amounted to 1·3 per cent. It was a soft yellowish resinous mass of an acid reaction.

3. The alcohol maceration was lost entirely through an accident.

4. Aqueous treatment.—The powder was treated next with water. The soluble portion amounted to 1 per cent., which was completely precipitated by alcohol.

5. Alkaline maceration.—The powder insoluble in the above was macerated with 0·2 per cent. solution of sodium hydrate. The total extract amounted to 15·9 per cent., of which 6 per cent. was precipitated by acetic acid and alcohol.

6. Acid extraction.—The powder was next treated with diluted 2 per cent. hydrochloric acid. The total extract amounted to 3 per cent.

The remaining insoluble powder was bleached and dried. It amounted to 31·4 per cent.

Recapitulation. Quantitative Results of Proximate Analysis.

	Leaves	Stem.	Root Bark.	Capsules.	Seeds.
Extracted by petroleum	2·600	·190	2·60	1·25	35·80
" " ether	1·460	·230	0·66	1·10	1·30
" " absolute alcohol	5·000	1·900	12·20	9·25	† .....
" " water	15·045	1·800*	8·90	5·000	1·00
" " diluted alkali	9·900	5·000	10·51	4·00	15·90
" " diluted acid	6·000	1·880	8·00	2·60	3·00
Residue (lignin)	42·600	64·005	42·625	62·300	31·40
Loss	3·645	14·829	·640	3·667	4·60
Moisture	13·750	10·166	13·865	10·833	7·00
Total	100·000	100·000	100·000	100·000	100·00
ASH.					
From air-dry part	5·033	1·333	5·700	3·500	2·222
From artificially dried	5·835	1·484	6·617	3·925	2·389

*Is not complete on account of loss. †This was entirely lost.

PHARMACEUTICAL PREPARATIONS OF THE MEXICAN PHARMACOPŒIA.

By the Editor.

Under "Preparaciones Farmacéuticas" the Mexican Pharmacopœia includes a number of animal and vegetable products which are rarely, if ever, made by the pharmacist, but are manufactured in industrial establishments and are met with in commerce as manufactured products. Among others, wine, vinegar, suet, lard, cacao butter, cocoanut oil, cod-liver oil, olive oil, and all other fats, as well as the various volatile oils have been placed in this class, while tar, oil of cade, empyreumatic animal oil, oil of amber, and similar articles are among the chemical products, "Productos químicos." Only the galenical preparations will be considered in the following abstracts.

These preparations are as a rule made by weight, and the formulas direct the ingredients in parts by weight, the total weight being usually 1,000 parts. The Spanish names have precedence in the pharmacopœia, and are followed by the French and English synonyms, and these by the Latin title. In the following only the Spanish and Latin names as recognized by this Pharmacopœia, will be given.

Aceite alcanforado, Oleum camphoratum.—Camphor 100, sesame oil 900.

Aceite de Cantáridas, Oleum Cantharidum.—Coarsely powdered cantharides 50, sesame oil 500; digest by means of a water-bath for six hours, express and filter.

Aceite de Cicuta, Oleum de foliis Conii maculati.—Fresh conium leaves 500, sesame oil 1,000; bruise the leaves, boil with the oil until the water has evaporated, digest at 80°C. for two hours, express and filter. The oils of belladonna, hyoscyamus, stramonium, solanum nigrum and tobacco are prepared in the same manner; instead of the fresh leaves, one-fourth the quantity of dried leaves may be used and moistened with a little water.

Aceite de estramonio compuesto, Balsamum tranquillans, Oleum Stramonii compositum.—Hyoscyamus, stramonium, solanum nigrum, and tobacco leaves, fresh of each 200 (or dried 50), belladonna leaves 50, sesame oil 5,000; bruise, boil and digest as above, express, decant and filter; then add 3 parts each of the volatile oils of lavender, rosemary, thyme, cedronella and spearmint; keep in a dark place.

Aceite fosforado, Oleum phosphoratum.—Phosphorus 2, sesame oil

100; fill a flask, stopper it, heat in a water-bath for 15 or 20 minutes, shake frequently, when cool decant from the phosphorus and preserve in small, well stoppered vials.

Aceite de hígado de bacalao ferruginoso, Oleum jecoris aselli ferratum.—Ferric benzoate 1, cod-liver oil 100; triturate the salt with a portion of the oil, put into a bottle, keep in a moderately warm place and shake well until a clear red-brown solution is obtained, rendering filtration unnecessary.

Aceite de huevos, Oleum e vitellis Ovorum.—Yelk of egg is coagulated by heat, expressed between hot iron plates, and the oil filtered while hot and preserved in well-closed vessels.

Aceite de manzanilla comun, Oleum de floribus Matricariæ Chamomillæ.—German chamomile flowers 100, sesame oil 1,000; digest in a water-bath for two hours, express and filter. In the same manner prepare the oils of St. John's wort, fenugreek and rose petals.

Aceite de sándalo compuesto, Oleum Santali compositum.—Oil of St. John's wort 500, turpentine 120, sweet gum (liquidambar) 60; dissolve and mix with powdered dragon's blood 15, powdered red saunders 15 and oil of cloves 2.

Acido acetico aromatizado, Acidum aceticum aromaticum.—Glacial acetic acid 60, camphor 6, oil of lavender 0·05, oil of cloves 0·20, oil of cinnamon 0·10; dissolve.

Aguardiente alcanforado, Alcohol camphoratus communis.—Camphor 100, alcohol (60 per cent.) 3,900; dissolve and filter.

The following medicated waters are directed to be prepared by distillation, 1,000 parts of distillate being obtained from the quantities given in each case:

Agua de azahar, Hydrolatum florum Citri Aurantii, from fresh orange flowers 3,000.

Aqua de canela, Hydrolatum Cinnamomi, from Ceylon cinnamon 500.

Agua destilada de corteza de naranja amarga, Hydrolatum de cortice Citri vulgaris, from fresh bitter orange peel 150 and alcohol (80 per cent.) 81. The distilled waters of the peels of sweet orange, citron and lemon are prepared in the same manner.

Agua destilada de hojas de capulin, Hydrolatum foliorum Cerasi Capollin, from fresh leaves of Cerasus Capollin, *De Cand.*, 1,000. This water is used in the place of cherry-laurel and bitter almond water; 1,000 parts of it contain 0·5 parts of hydrocyanic acid.

Agua destilada de lechuga, Hydrolatum Lactucæ, from 2,000 parts of flowering garden lettuce, deprived of the lower leaves.

Agua rosada, Hydrolatum Rosæ, from fresh rose petals 1,000.

Agua destilada de tilia, Hydrolatum Tiliæ, from dried linden flowers 1,000. In the same manner prepare distilled water from chamomile flowers, fennel, valerian and analogous drugs.

Agua destilada de yerbabuena, Hydrolatum Menthæ viridis, from fresh spearmint 4,000. Prepare in the same manner the water of eucalyptus leaves and of Cedronella mexicana.

The term *agua* is also applied to various solutions and mixtures, some of them containing alcohol.

Agua albuminosa, Aqua albuminosa.—White of two eggs, water 500 Gm.

Agua alcanforada, Aqua camphorata.—Macerate for two days powdered camphor 10 in distilled water 1,000; it is stated to contain 0·33 per cent. camphor in solution.

Agua de alquitran, Aqua picea.—Norway tar 5, pine sawdust 10; mix well and macerate for 24 hours with distilled or river water 1,000.

Agua articular, Tinctura de Nicotiana composita.—Tobacco 90, origanum, sage, rosemary, elder flowers, lavender, black pepper and mustard seed of each 60, euphorbium 30, castor 30, alcohol (60 per cent.) 3,000; bruise all the drugs except the mustard, macerate in the alcohol for 10 days, express and filter. Used as a stimulating embrocation.

Agua segunda de cal, Aqua calcica.

Agua de cal mercurial, Aqua phagedænica nigra.—Calomel 0·50, lime water 300; mix.

Agua carmelitana, Alcoholatum Cedronellæ mexicanæ compositum.—Fresh cedronella flowers 1,000, fresh lemon peel and bitter orange peel, each 120, nutmeg, cloves and coriander each 90, Ceylon cinnamon 60, alcohol (80 per cent.) 6,000; macerate for two days and distil from a water-bath. Dose as a stimulant 8 to 15 Gm.

Agua cefálica, Alcoholatum Rosmarini.—Fresh rosemary leaves 1,000, dry lavender flowers 500, alcohol (80 per cent.) 3,000; macerate for four days and distil off the spirit; from the residue by means of steam obtain 500 parts of aqueous distillate and mix the two liquids. Used externally.

Agua celeste, Collyrium cæruleum.—Sulphate of copper 1, ammonia water (20 per cent.) 5, water 625.

Agua de Colonia, Alcoholatum coloniense.—Volatile oils of limes and lemon each 30, of orange, cedronella, linaloe, lavender and rosemary each 15, of orange flowers and Ceylon cinnamon each 5, alcohol (84 per cent.) 3,500; mix, after four days distil, and to the distillate add essence of jessamin 30.

Agua del Dr. Sanchez, Collyrium cum sulfato zincico ex Sanchez.—Sulphate of zinc 2, powdered orrisroot 4, water 500; macerate for three days and filter.

Agua fagedénica roja, Aqua phagedænica flava.—Corrosive sublimate 0·40, lime water 120.

Agua fénica oficinal, Aqua phenicata officinalis.—Crystallized phenol 20, water 1,000.

Agua hemostática de Pagliari, Aqua hæmostatica ex Pagliari.—Dissolve benzoin 20 in alcohol (90 per cent.) 50, and alum 100 in water 1,000; mix, heat to 60° C. with frequent agitation until the mixture is no longer turbid, and replace the water which may have evaporated. Its density is 6° B.

Agua sedativa de Raspail No. 1, Aqua ammonio-camphorata ex Raspail.—Ammonia water (20 per cent.) 60, Raspail's spirit of camphor 10, sea salt 60, water 1,000. For No. 2 the ammonia water is increased to 80, and for No. 3 to 100 parts.

Agua de vegeto, Aqua cum subacetate plumbico ex Goulard.—Subacetate of lead 15, water 500, cologne water 30; mix.

Alcohol alcanforado, Alcohol camporatus.—Camphor 100, alcohol (90 per cent.) 900.

Alcohol alcanforado de Raspail, Alcohol camphoratus ex Raspail.—Camphor 100, alcohol (95 per cent.) 400.

For preparing distilled spirits, the drugs properly comminuted, are macerated in the alcohol for two or four days, after which time the liquid is distilled by means of a water-bath.

Alcoholato de canela, Alcoholatum corticis Cinnamomi.—Ceylon cinnamon 500, alcohol (80 per cent.), 4,000; distil off all the spirit. Orange and lemon spirits are made in the same manner from the fresh peels, using alcohol 3,000.

Alcoholato de contrayerba compuesto, Alcoholatum Dorsteniæ compositum.—Contrayerva 120, valerian 60, ginger 60, rosemary, sage, lavender and cloves of each 30, alcohol (80 per cent.) and water, each 3,000; distil 4,000 Gm.

Alcoholato de énula compuesto, Alcoholatum Foeniculi compositum.

—Fennel 120, anise, caraway, allspice, Ceylon cinnamon and laurel berries of each 30, rosemary, elecampane and ginger each 60, nutmeg, cloves and bitter orange peel each 5, alcohol (80 per cent.) 3,000, water 1,000; distil 3,000 Gm.

Alcoholato de Garûs, Alcoholatum ex Garus.—Aloes 20, saffron 20, myrrh, Ceylon cinnamon, cloves and nutmeg, of each 10, alcohol (56 per cent.) 5,000; distil 2,500 Gm. This is used for preparing the *Elixir de Garûs* by mixing of the above spirit 1,000, simple syrup 1,200 and double orange flower water 100 Gm.

Alcoholato de toronjil, Alcoholatum Cedronellæ mexicanæ.—Fresh cedronella leaves and flowers 1,000, alcohol (80 per cent.) 3,000; distil all the spirit; add to the residue fresh cedronella 500, and by means of steam obtain 500 Gm. of watery distillate and mix with the spirit.

Alcoholato de trementina compuesto, Alcoholatum Terebinthinæ compositum.—Common turpentine 500, white copal 180, myrrh 120, sweet gum (liquidambar) 120, laurel berries 100, galbanum, Ceylon cinnamon, cloves, nutmeg, ginger and origanum, of each 60, alcohol (80 per cent.) 3,500; distil 3,000 Gm. Used externally in rheumatic complaints.

Alcoholaturos, Alcoholatura, are tinctures prepared from fresh drugs, the plants being collected when the flowers begin to appear, bruised and macerated with an equal weight of 90 per cent. alcohol. Such tinctures are prepared from aconite leaves, aconite root, arnica flowers, hyoscyamus, belladonna, colchicum tubers and flowers, digitalis, stramonium, tobacco, toxicodendron and from the flowers of Magnolia mexicana.

Algodon absorbente Gossypium absorvens.—Prepared by a process similar to that recommended by Mr. F. L. Slocum ("Am. Jour. Phar.," 1881, p. 53).

Algodon yodado, Gossypium iodatum.—25 Gm. of carded cotton are mixed as intimately as possible with 2 Gm. of finely powdered iodine; the mixture is introduced into a glass stoppered bottle, which is heated for several minutes in water to expel the air, then firmly closed, and heated to about 100° C for at least two hours. After cooling the cotton is preserved in well stoppered bottles.

Apocema blanca de Sydenham, Apozema alba ex Sydenham.—Precipitated calcium phosphate 20, powdered white bread crumb 40, white gum, 40; mix, boil with water, stirring continually, and when the mixture has been reduced to two liters, pass through loose cotton

and add syrup of gum, 120 Gm. Used as an anodyne and absorbent, 60 to 290 Gm., or more being taken during a day.

Apocema de cuso, Apozema de Brayera anthelmintica.—Powdered koosso 10, water 200; macerate for 12 hours, boil until reduced to one-half and dispense without straining.

Apocema sudorifica, Apozema sudatorium.—Guaiac wood 60, sarsaparilla 30; boil for one hour with sufficient water for making 1,000 parts of decoction, macerate for two hours with sassafras 10 and liquorice root 20, then strain and decant. To be taken in divided doses during a day.

Arrope de mora, Rob mororum.—Evaporate slightly fermented juice of mulberries to the consistency of thick honey. Rohob of elderberries is prepared in the same manner.

Azucar naranjada purgante, Oleosaccharuretum Aurantii purgativum.—Powdered jalap 60, soluble tartar (potassium boro-tartrate) 15, sugar 440, oil of orange 4. Dose as a purgative 8 to 15 Gm.

Bálsamo anodino, Tinctura cum Opio et Sapone camphorata.—Opium 60, soap 120, camphor 90, saffron 30, alcohol (80 per cent.) 3,000; macerate for ten days. Used externally in rheumatism and neuralgia.

Bálsamo católico, Tinctura balsamica.—Angelica 10, flowering tops of St. John's wort 20, alcohol (80 per cent.) 720; macerate for eight days, express, strain and add myrrh 10, frankincense 10; again macerate for eight days and add tolu balsam 60, benzoin 60, and Cape aloes 10; macerate as before and filter. Used as a topical application for indolent and troublesome ulcers.

Bálsamo de Gonzalez, Linimentum anodynum.—Stramonium oil (oleoinfusion) 250, anodyne balsam 25, ammonia water (20 per cent.) 15. Used in muscular pains of the breast and back.

Bálsamo nerval, Balsamum nervale, Pomatum nervinum.—Camphor 3, Tolu balsam 6; reduce to a fine powder, add gradually with trituration a mixture of beef marrow 70, expressed oil of nutmeg 90, and sesame oil 20, and incorporate with it oil of rosemary 6, and oil of cloves 3. Used as an anodyne in rheumatism.

Bálsamo Opodeldoc concreto, Linimentum Opodeldoch concretum.—Formula of the former French Codex.

Bálsamo Opodeldoc líquido, Linimentum Opodeldoch liquidum.—Equivalent to our soap liniment, but contains about 2·6 per cent. of ammonia water.

GLEANINGS FROM FOREIGN JOURNALS.

By J. Robert Moechel.

Stable Solution of Salicylate of Sodium.—G. M. Markovich recommends adding gradually 60 Gm. of sodium bicarbonate to 100 Gm. salicylic acid, and 225 Gm. water, contained in a flask; when effervescence ceases, warm; then pass through a previously washed filter, and add 1,000 Gm. of distilled water. This gives a solution containing 10 per cent. of the salt.—*Phar. Post*, 1885, p. 273.

For removing iron mould a weak solution of zinc chloride is recommended as being better than oxalic acid; afterwards wash with cold water.—*Ph. Post*, 1885, p. 368.

Poudre Refulgente, Polishing Powder.—Mix 93 magnesia with 7 parts red oxide of iron.—*Rundsch. Leitm.*, 1885, No. 7.

Cologne Water, I.—10 oil of bergamot, 5 oil of lemon, 1 oil of lavender (best), 5 oil of rosemary (rectified), 1 oil of cloves, 1 oil of neroli (best), 0·2 oil of ylang-ylang, 1 acetic ether, 1 acid acetic, 825 alcohol, 150 distilled water. Warm this mixture to 70° or 75°C., then keep in a cool place for two days, and filter. Heating to such a temperature improves a Cologne water considerably, and makes it resemble the distilled perfume, surpassing the simple mixture of the ingredients. The true Cologne waters are either acid or alkaline in character. No. 1 belongs to the former class; those of the latter class contain a little ammonia; but it should be remembered that the oils of lavender and rosemary acquire a strong unpleasant odor in presence of free alkali.

Cologne Water, II.—10 oil of bergamot, 5 oil of lemon, 2 oil of rosemary, 1 oil of neroli, 0·5 oil of lavender, 0·2 ammonia water, 885 alcohol, 100 distilled water.

Cologne Water, III, for bathing.—2 oil of citronella, 2 oil of lemon, 5 oil of bergamot, 5 oil of rosemary, 2 oil of sassafras, 1 oil of cloves 1 oil of wintergreen, 10 acetic ether, 800 alcohol, 200 distilled water. Prepare as above. For distilling, add one-half more of water, and distil very slowly, avoiding unnecessary heat.

Fly Water.—Mix when needed, and dispense without filtering, 200 syrup of quassia, 50 alcohol and 750 water. It is used by moistening with the mixture a cloth or filtering paper on a plate.

Syrupus Quassiæ.—Macerate, during 24 hours, 1,000 parts of quas-

sia wood with 5,000 parts of water, then boil for ½ hour. Set aside for 24 hours, and press. Mix the liquid with 150 parts of molasses, and evaporate to 200 parts. A weaker decoction of quassia does not kill the flies.

Tincture of iodine is proposed as a new blow-pipe reagent by Wheeler and Ludeking, who find it to take the place of hydriodic acid, recommended by E. Haanel. In place of the ordinarily used charcoal they recommend discs made of plaster of Paris. The substance to be examined is placed on one end of the disc, moistened with the tincture, and then heated with the blue flame; the volatilized iodides settle on the cooler part of the disc. The metals are distinguished by the following colors: arsenic, orange-red; lead, chrome yellow; tin, orange-brown; silver, pale grayish yellow when cold, and light yellow when hot; antimony, orange-red; mercury, yellow, soon changing to scarlet; selenium, reddish brown; bismuth, chocolate-brown, with red border on the side nearest the substance examined; cobalt, greenish brown, with green border (the brownish hue soon changes to light green, especially when blown upon); molybdenum, deep ultramarine blue near the heated spot; tungsten, pale greenish yellow near the heated spot; copper, white; cadmium, white, turning bright golden yellow when vapor of sulphide of ammonium is blown over it; zinc, white, disappearing soon.

If a drop of a solution of ammonia be added to, or if ammoniacal vapor be blown upon the velvety chocolate-brown mass produced by bismuth, the color changes from brown to bright red.

Many of the colors soon vanish. By this method tin and zinc can be distinguished by means of the blow-pipe. The reaction of molybdenum is distinct and characteristic.—*Chemiker Zeitung.*

Terpin has been recommended as an excellent expectorant in bronchitis, in doses from 0·20 to 0·40 Gm.

Fournie prepares terpin as follows: a mixture of 4 liters of rectified oil of turpentine, 3 liters of alcohol (80°), and 1 liter of nitric acid, is placed in large shallow porcelain or glass vessels. The crystals which separate are collected, dried between folds of filtering paper, and again dissolved in 95 per cent. alcohol which has been made alkaline so as to neutralize any adhering HNO_3; the solution is set aside in a cool place to crystallize. The yield is about 12 per cent. of the turpentine used.—*Lyon Méd.; Ph. Centralhalle*, No. 17.

NOTE ON THE ALLEGED DECOMPOSITION OF QUININE IN CONTACT WITH LIME.[1]

By F. W. Passmore.

In a recent communication to the "Journal de Pharmacie,"[2] M. Masse expresses an opinion that the lime used in the ordinary processes of cinchona bark analysis exercises an injurious influence upon the yield of alkaloid, especially at the temperature of the water-bath. This opinion he considers to have been confirmed by the results of some experiments made directly upon quinine sulphate, of which he describes the following:

One gram of the crystalline salt, containing 12 per cent. of water, and therefore representing 0·88 gram of anhydrous sulphate, was dissolved in 50 cc. of water, acidulated with 1 cc. of hydrochloric acid. The solution was divided into two equal parts, and 10 grams of lime having been added to each portion both were evaporated to dryness, one upon a water-bath at a temperature of 91° C., the other in the cold under a bell-glass connected with a water-pump. The dry mixture which had been submitted to the temperature of the water-bath, when extracted with chloroform, gave a solution which, according to M. Masse, yielded a residue of quinine equal to only 0·389 gram of sulphate of quinine dried at 100° C. The other mixture, which was air-dried, when treated in the same manner yielded a residue equal to 0·430 gram of dry sulphate of quinine. As the theoretical quantity that should have been obtained in each case was 0·440 gram, there was a deficiency in the former case of 0·051 gram and in the latter of 0·010 gram of sulphate of quinine, which M. Masse attributes to the action of the lime.

If this statement could be substantiated it would be of considerable importance, as pointing to a loss of upwards of 11½ per cent. of alkaloid, and therefore constituting a source of serious error in the analysis of bark by methods ordinarily followed. In order therefore to test its accuracy, M. Masse's experiment was repeated. 0·5 gram of pure quinine sulphate, containing 5·3 per cent. of water and equivalent to

[1] Read at an Evening Meeting of the "Pharmaceutical Society" of Great Britain, April 1, 1885. Reprint from "Pharm. Jour. and Trans.," April 11, 1885, p. 829, communicated by the author.

[2] "Journal de Pharmacie et de Chimie," March 1, 1885, p. 260.

0·411 gram of alkaloid, was dissolved in 25 cc. of a 2 per cent. solution of hydrochloric acid; to this solution 10 grams of lime was added and the whole was dried at the temperature of the water-bath. The residue was finely powdered, introduced into a small glass percolator and the alkaloid extracted with chloroform. After complete exhaustion of the mixture the chloroform solution was carefully evaporated to dryness. The residue gave a weight of 0·409 gram of quinine alkaloid, or a deficit of two milligrams, which slight loss may be considered to be due to experimental error. In a subsequent experiment ether was employed in preference to chloroform as an extracting agent, as being less difficult of manipulation. The ether residue obtained was, to avoid impurities, redissolved in a slight excess of acid, and the alkaloid precipitated with ammonia and extracted with ether. This second ether solution upon evaporation left a residue of quinine alkaloid weighing 0·409 gram, or a deficit of 0·002 gram upon the 0·411 gram of alkaloid required by theory. This loss also may be considered due to experimental error, and both results are totally at variance with those obtained by M. Masse.

NOTE.—The results obtained by Mr. J. F. C. Jungk and by Professor R. Fresenius, in investigations made for an entirely different purpose (see "Am. Jour. Phar.," 1883, p. 434, 435) agree completely with those of Mr. Passmore.—EDITOR AM. JOUR. PHAR.

Cassia Absus, *Lin.*—Attention has recently been called again to the seeds of this plant which have long been used in the East for granular conjunctiva under the name of *chichem* or *schimsch*, and occasionally in Europe as *semen cismæ*. The plant is an annual, indigenous to the East Indies and westward to Central Africa; the rather narrow glandular-pubescent legume contains 5 or 6 seeds, which resemble flaxseed, are flattish-ovate, glossy, brownish black, and have a somewhat aromatic odor and a mucilaginous disagreeable and bitter taste. J. J. Virey, in "Jour. de Phar.," May, 1823, described the application as follows: The seeds are well washed, then dried, finely powdered and mixed with an equal quantity of sugar; a small portion of this powder is dropped or blown into the diseased eye, which is then closed. The powder is of rapid action and irritating, and should not be used in the inflammatory stage of the disease; according to Frank its activity is increased by the addition of turmeric. J. M. M.

DETECTION OF PHENOL IN CREASOTE.[1]

By Peter MacEwan.

In the "Chemical News," of May 2, 1884, there appeared the following note among the weekly "Chemical Notices from Foreign Sources," the source in this instance being "Zeitschrift für analytische Chemie:"

"*A Sensitive Reaction of Phenol* (J. F. Eykman).—A very dilute solution of phenol mixed with a few drops of nitrous ether, and the same volume of undiluted sulphuric acid, takes a red color. If the acid is allowed to run down the side of the glass so as to form a layer below the phenol solution, there appears a narrow red band where the liquids meet. This reaction indicates one in two millions."

On trying the test with a 5 per cent. solution of pure nitrous ether, and 1 per cent. and 1 per mille solutions of phenol, I obtained a triple ring, the intermedial stratum being brown, the lower a bright emerald green, and the upper pink. This not being satisfactory I referred to the "foreign source" and found that Eykman's paper had appeared in *New Remedies* and that *spirit of nitrous ether* was to be used in the test. With the spirit the emerald green color is not produced; the ring is at first brown with a red shade, but after standing for a short time the brown color disappears, leaving a fine pink stratum, and the strong acid has also a pink shade. On mixing the two liquids an opaque solution of a red shade (approaching magenta) is produced. The pure nitrous ether solution is quite clear and of a darker red color. The red color is due to reaction between phenol-sulphonic acid and the aldehyde contained in the sweet spirit of nitre.[1] The reaction as a mere test-tube experiment is pretty and interesting, particularly when a solution of pure nitrous ether is used, the immediate bright green color, and the gradual development of the red owing to the slow formation of aldehyde, are very interesting. Apart from this it struck me that the reaction might be practically useful in the detection of phenol in creasote, and I put the matter on trial.

An aqueous solution of creasote (1 in 500) on the addition of spirit of nitrous ether becomes cloudy and colored (phenol solution remains transparent and colorless), and when the sulphuric acid is added a

[1] Read at a meeting of the Edinburgh Chemists' Assistants and Apprentices' Association, January, 28.

[2] See paper by Mr. Dunstan, "Pharm. Journ.," [3], xiv, 837.

dark brown ring is formed between the layers. After cooling, the layers are mixed, and a brown solution with a brown froth is formed.

The following results were also obtained:

Creasote containing 10 per cent. of phenol. Dark brown ring, brown above, acid acquired pink tinge. On mixing: dark brown solution, and brown froth with red shade.

Creasote containing 20 per cent. phenol. Dark brown ring, brown above, acid acquired pink color. On mixing: red-brown solution and froth of red shade.

Creasote and phenol, equal parts. Red-brown ring, brown above and pink below. On mixing: pink-brown solution and pink froth. (This mixture gives results which nearly approach to those with pure phenol.)

If the solutions of pure creasote and those containing 10 and 20 per cent. of the adulterant be allowed to stand for half an hour or longer after mixing, again shaken and allowed to rest for a few minutes, the pure creasote froth is found to be white, while the others are distinctly red tinted.

From these results I consider that the application of Eykman's test to the detection of phenol in creasote is practicable; the reagents required are common things, and the application of the test quite easy. Although I have made parallel experiments with solution of pure nitrous ether, the results obtained were not much different from those with spirit of nitrous ether. The strength of the creasote solution should be about 1 in 500—a single drop dissolved in an ounce of water will serve. In applying the test, five drops of spt. æther. nit. are first placed in a test-tube (5 inches by $\frac{3}{4}$ inch diameter is the best size to permit shaking), then a drachm of the creasote solution, and, lastly, the same volume of strong sulphuric acid carefully poured down the side of the tube. There are first to be noted the color of the ring and any change produced in the acid; if it be pink, phenol is present. Then after the contents of the tube are quite cold the layers should be mixed and the color of the froth noted, which will corroborate the first observation. Further, if the contents of the tube remain undisturbed until the flocculence rises to the surface, the clear liquid in the case of pure creasote is of a pale brown color, but when phenol is present to the extent of 10 or 20 per cent. it is a dark red or reddish brown.—*Phar. Jour. and Trans.*, March 14, 1885, p. 754.

A TECHNICAL POINT IN THE MANUFACTURE OF CERTAIN AERATED BEVERAGES.[1]

By W. A. H. Naylor.

A short time ago a manufacturer of aerated beverages brought to me a bottle each of ginger ale and ginger beer that he had recently made, in which neither aroma nor pungency could be detected. He was quite unable to account for the rapid disappearance of those characteristic properties, which he affirmed the syrupy essence possessed to a high degree before aeration, and he desired from me an explanation.

As no clue to the cause of this remarkable disappearance was obtained from the answers he supplied to numerous questions put to him regarding the purity of the materials he had used in the production of the drinks, it was deemed advisible to subject the two samples to a general examination.

As a preliminary step, the carbonic acid was drawn off, collected and examined, the result being that the gas was found to be mixed with an appreciable quantity of air. The further discovery was made that both samples were contaminated with copper, a circumstance which sufficiently explained the metallic taste that characterized them. But in these facts there did not appear more than a show of reason for regarding them as sources of the evil which formed the subject of complaint. Accordingly the machinery was overhauled and the necessary repairs were executed. In proof of the fact that the mechanical defects were remedied, it may be mentioned that subsequent "charges," after bottling, showed no admixture of gas with air, and no metallic contamination. The complete result, however, was not obtained, for on opening one of the bottles four hours afterwards it became evident from the absence of pungency that the old grievance still existed. The next step consisted in testing the respective materials, solid and liquid, which played any part in the manufacture of the ginger beverages. These included citric acid, sugar, ginger essence, water, and calcium carbonate from which the gas was generated. All were found to be unexceptional as to quality. There was yet one more chemical to be examined, viz., the oil of vitriol. The chief feature that attracted attention in regard to the acid was the unpleasant smell it emitted,

[1] Read at an Evening Meeting of the Pharmaceutical Society of Great Britain, March 4, 1885.

recalling nitrous acid. This suspicion as to the presence of nitro-compounds was confirmed on the application of the well-known iron test. A given volume of the acid was next treated with an excess of pure sulphuric acid and metallic mercury, and the volume of nitric oxide evolved was measured. It gave gas corresponding to the following amounts of nitrogen: One hundred pints of the acid yielded four and a half pints of nitrogen, equivalent weight for weight to ·003 per cent. of nitrogen. Beyond traces of iron no other impurity was detected.

At this stage the following experiments were instituted. Into a soda-water bottle were put suitable quantities of the ginger essence, syrup and calcium carbonate, and water to nearly fill it. Then sufficient of the contaminated acid was added to decompose the lime, and the contents of the bottle were immediately secured by a cork wired down. Repetition experiments were made, in which a portion of the ginger essence was replaced by capsicine and gingerine, and others in which a pure acid was substituted for the impure oil of vitriol. The bottles were opened at varying intervals, when the following observations were made. Those in which the impure acid had been used showed a marked decrease in pungency at the end of two hours; at the end of four hours the pungency was faint; at the end of six hours it had completely disappeared. The ginger essence, gingerine and capsicine had been affected apparently to the same degree. Those in which the pure acid had been used had retained their pungency apparently in its entirety.

These results, which were in perfect accord with those which were obtained at the factory, left little doubt that the cause of mischief was attributable to the nitro-compounds in the oil of vitriol used for generating the carbonic acid gas.

This conclusion received the clearest verification at the hands of the manufacturer the instant he used an acid that was free from smell and that did not respond to the iron test.

Beyond this point the inquiry was not pushed, and, therefore, it is not possible to predict with certainty the precise change which here takes place. Dr. Thresh, in his investigations on the pungent principles of plants, has demonstrated their ready destructibility under the influence of oxidizing agents. And it is not improbable that the effect produced by small amounts of nitro-compounds, acting under great pressure, on the active principles of ginger and capsicum is similar to

that which results from the use of strong oxygenated solutions acting at ordinary pressures. If this were so, the decomposition would give rise among other products to a fatty acid of the acetic series.

In offering this note for publication I desire it to be understood that its one object is to supply an explanation—hitherto I believe unknown—of an important fact, and to caution makers of aerated beverages against the use of an acid impregnated with the oxides of nitrogen.—*Phar. Jour. and Trans.*, March 7, 1885, p. 731.

AN IMPURITY IN DISTILLED WATER.[1]

By T. P. Blunt, F. C. S.

In the late autumn of last year an anomaly was observed in the indications of Tidy's permanganate test for water. It was found that the amount of iodine set free from potassium iodide in the blank experiment with distilled water was very much in excess of what was to be expected, and the amount of hyposulphite solution used in destroying it varied in successive determinations within very wide limits. It was at first suspected that the iodide used contained iodate, but this did not prove to be the case. Then one by one the different solutions were made afresh until all had been changed. Still the perplexing anomaly continued; 75, 80, even 120 measures of hyposulphite solution were used up instead of the calculated 54 or 56. Thus by a process of exhaustive elimination I was driven back on the distilled water as the source of the trouble. I tested it by adding some quantity to acidified starch and iodide solution, and at once obtained a strong blue coloration. This reaction pointed to the presence of nitrous acid, and though I was not in a position to apply the direct metaphenylenediamine test there can be no doubt that the anomalous results observed were to be attributed to that body. The dilute permanganate for the blank experiment is prepared at the time by mixing a measured bulk of a stronger solution with distilled water, and no doubt the great difference in the quantities of iodine liberated was due to accidental variations of the time intervening between the mixture and the addition of potassium iodide, the mutually destructive reaction between permanganate of potassium and nitrous acid occupying some little time.

[1] Read at an Evening Meeting of the "Pharmaceutical Society" of Great Britain, April 1, 1885.

Together with the nitrous acid, ammonia was found in unusual quantity, and the acid was probably present in part at least in the form of ammonium nitrite.

It will be noticed that this occurred in the late autumn, which agrees with the recorded fact that the organic impurities in water increase on the approach of the winter months. Nitrous acid in water is usually ascribed to the reducing action of a micro-organism on nitrates, themselves produced from ammonia or combined organic nitrogen by another organism of opposite chemical function, as recently shown by Warington, and in the present case this is no doubt the true account of the matter. But nitrites are by no means invariably due to organisms; it is well known that in Williams's process for determining nitrates with the copper-zinc couple, and in other similar methods where zinc is used for reducing them, the appearance of ammonia is preceded by that of nitrites, and it has come under my observation that where a water containing nitrates is passed through some length of "galvanized" iron piping, nitrites are formed in some quantity. Indeed, wherever nitrites are detected in a water it is always safer to test for zinc, which may be done in a moment with potassium ferrocyanide and a few drops of hydrochloric acid.

It is clear that nitrous acid is a very undesirable constituent of distilled water from a pharmaceutical point of view, and I am now in the habit of adding to my still-charge a slight excess both of sulphuric acid and of potassium permanganate. I thus succeed in destroying nitrites and keeping back ammonia, and am able to provide for myself and supply to my colleagues in the town a distilled water of exceptional purity, giving no reaction whatever either with Nessler's test or starch and iodide solution.—*Pharm. Jour. and Trans.*, April 11, 1885, p. 829.

Sedum acre, *Lin.*, nat. ord. Crassulaceæ, is recommended by Dr. Louis Duval, of Madrid, as a remedy for diphtheria, a decoction in beer being made of which a wineglassful is taken every hour. After several doses copious vomiting is produced, removing the diphtheritic membranes.

This is the *mossy stonecrop* of our gardens and naturalized in dry and rocky places in the United States. It formerly enjoyed considerable reputation as a remedy in scurvy, dropsy, epilepsy, and externally in ulcers and various skin diseases. J. M. M.

SPURIOUS CUBEBS.

By E. M. Holmes, F. L. S.,
Curator of the Museum of the Pharmaceutical Society.

My attention has recently been directed again to the spurious cubebs which were offered for sale in the London market last year, by a paragraph in the "Lancet" (May 2, p. 829), from the pen of Dr. Buxton Shillitoe, in which he states that a patient came to him, who had been taking cubeb powder, and complained that it made him feverish, with sickness and purging. The patient had previously taken cubeb powder for a week without its disagreeing with him, and then had to buy some more. The new sample had a more acrid and unpleasant taste, and gave rise to nausea, followed by diarrhœa, etc. He persevered with it for three days, when he became so ill that he could not go to business.

Feeling sure that either the spurious cubebs (*Piper crassipes*?), which Mr. W. Kirkby kindly examined microscopically at my request ("Phar. Jour.," Feb. 14, p. 653), or the berries of *Daphnidium Cubeba*, which have still more recently been offered as cubebs, had been used, either pure or mixed with true cubebs, I wrote to Dr. Shillitoe, who kindly furnished me with a specimen of the cubebs which caused the unpleasant symptoms above described.

The distinctions between the true and spurious cubebs, given in Mr. Kirkby's paper, being available only for detecting the entire fruit, and not for the examination of the powder if mixed with that of true cubebs, it seemed desirable to again examine the drug in the interests of public safety, in the hope of finding out some practical test that could be easily and quickly applied so as to enable chemists who might unwittingly have received the adulterated article to detect its character. I therefore made a decoction of the true drug, of the *Piper crassipes* and of the *Daphnidium Cubeba*, and of the adulterated cubebs forwarded by Dr. Shillitoe, and applied several reagents, with the following results.

Iodine solution gave a bright indigo-blue coloration with the genuine cubebs, a dull purplish hue with *P. crassipes*, no change of color with *Daphnidium Cubeba*, and a dull purplish blue with the spurious cubebs, indicating an admixture of a little genuine cubebs with *P. crassipes*, very different to the very distinct blue tint of the genuine drug.

Solutions of bichloride of mercury, subacetate of lead, perchloride of iron, and nitric acid gave no useful indications.

On crushing a little of the genuine cubebs on a porcelain slab with concentrated sulphuric acid a deep crimson color with a distinct carmine tint in it is quickly developed. *P. crassipes* gives a reddish brown color, *Daphnidium Cubeba* a yellowish brown hue, and the adulterated cubebs a crimson-brown tint. Under the microscope the small angular starch of both the false and genuine cubebs is easily recognized, but *D. Cubeba* does not show any starch granules.

On repeating the experiments, I found that the distinct pure blue tint given by iodine to a decoction of genuine cubebs could be distinguished without difficulty from the dull purple tint (like diluted ink) of the spurious cubebs, even when the liquid was diluted, and that the peculiar carmine hue of the genuine was easily recognizable in the genuine article, especially at the edge of the drop of acid, but not in the adulterated cubebs.

I hasten, therefore, to point out these two tests, in the hope that they may serve to prevent this spurious cubebs from being further sold to the public. In view of the difficulty that exists in preventing spurious drugs, especially in the form of powder, entering into commerce, it may be interesting to state the facts concerning the spurious cubebs, so far as I am acquainted with them.

On March 21, 1884, I received a specimen of spurious cubebs from Mr. J. Hartford, of New York, who stated: "I picked up, in the early part of the week, a sample of cubebs out of a lot of two bags offered at a public auction here. I was unable to procure any information about this lot, but learned that the Customs office here had condemned a lot as not being genuine and had confiscated the same, and by the courtesy of Major Horner I am enabled to send you two samples. No doubt the high price now ruling has to do with this imitation." On May 6, 1884, I received another sample from a wholesale druggist, who requested an opinion as to their genuineness, stating that they had been offered for sale, and two hundredweight had been purchased, presumably in ignorance, by a London drug firm. Subsequently, on June 17, I was informed that the same cubebs were offered a second time, and not a single bid was made, and the selling broker was simply laughed at. Nevertheless, there can be no doubt that the spurious cubebs have been powdered and sold as genuine, or

mixed with the genuine, as has apparently been done in the case alluded to by Dr. Shillitoe.

It is worthy of note in connection with this subject that a species of pepper, evidently so nearly allied to cubebs, should possess properties so different to that of the genuine drug, and it may serve as a warning to wholesale as well as retail chemists to carefully examine the drugs that pass through their hands, even when presenting a genuine appearance. At the present time I have good reason to believe that there is, in commerce, a root which closely resembles the true *Pareira brava* in appearance, except in having narrower and more woody concentric zones. Although evidently belonging to the same natural order, there is no evidence as yet that it possesses similar properties.

In conclusion, it may be reiterated here that the spurious cubebs have a more bitter taste and an odor resembling that of mace.

It may also be pointed out, as a general rule, that when a drug goes up in price, it is time to be on the look out for adulteration or substitution.—*Phar. Jour. and Trans.*, May 9, 1885, p. 909.

THE BORAX DEPOSITS IN CALIFORNIA AND NEVADA.[1]

It may be said in general terms that all California, south of the Chon-chilla and Tresno region and east of the coast range, is a silver and borax region. Southern Nevada is much the same. The counties of Mono, Juyo, and San Bernardino, with a part of San Diego, are the chief localities, though a remarkable line of borax deposits extends across Nevada, from west of Humboldt Sink to Desert Wells and Fish Lake, 140 miles southeast. The first discovery of borax in California was made in 1856 near Red Bluff, in the northern part of the State. The first deposits, however, successfully worked, were those of the Borax and Hachinhama Lakes in Lake county, 100 miles north of San Francisco. At present the supply comes from the more easily worked and richer deposits in the sandy deserts about Death Valley and southeast of Pyramid Lake in Nevada. The first shipment of borax was made in 1864.

The crystals of borax in the mud were removed by the use of coffer-dams, 4 feet square, and often nearly 1,000 lbs. were taken from one

[1] From a report on the production of borax in the United States, forwarded by Mr. L. S. Sackville West to Earl Granville.

such space. In the deepest mud stratum the small crystals disappeared and immense ones, often 7 inches and four inches thick, were discovered. These needed only solution and recrystallization to render them fit for market.

About 1868, operations ceased at Borax Lake, but continued at Hachinhama till 1873, producing annually 250,000 lbs. In 1866 the borax still remaining was estimated at 54,000,000 lbs.

In San Bernardino deposits of tincal and borated sands have attracted much attention. The product is of the finest quality, and its manufacture has been highly profitable. . The marsh is twelve miles long and eight miles wide, and is worked by several English and American companies.

Borax minerals are found throughout this region in a great variety of forms, as native borax or tincal, as boracic acid, as ulexite or borate of lime, as pricute, pandermite and colemnite. Of all these the silky white balls of ulexite, often one foot in diameter, compressible, cotton-like, and similar to the Tarapacá produce, is the most attractive form.

The crude boraxes of the Pacific Coast are usually of high quality, but the chief problem is to economize labor and cost of transportation, and the effort is being made to produce the highly concentrated "boracic acid glass," 1 lb. of which is equal to 3 lbs. of common borax. The Basin of Nevada, in which the alkaline lakes or marshes of Mono, Owens, Walker, Carson, Humboldt, are situated, is covered in many parts with dry efflorescent salts, washed in the course of ages from the soda feldspar of the volcanic rocks and ridges of yellow lava which cover the country for miles. The waters of the lakes are heavy, appear like thin oil, smell like soap, possess great detersive qualities, are caustic as potash, and easily saponify.

Teel's Marsh, in Nevada, is the most productive borax field on the Pacific Coast, and its tincal deposit covers ten square miles of surface. Dr. Le Conte visited Rhode's Marsh in 1882, and found it to contain chemically pure common salt, borax in three forms, sulphate of soda and carbonate of soda, all in great quantities, and within a space of three miles square.—*Phar. Jour. and Trans.*, April 25, 1885, p. 874.

CANNABIS INDICA AS LOCAL ANÆSTHETIC.—Dr. A. Aaronson recommends diluted tincture of Cannabis Indica as a local anæsthetic in dentistry. It is mixed with three or five parts of water and frequently applied to the gums and cavities during the operation.—*Pacif. Med. and Surg. Jour.*, April, 1885.

GLEANINGS IN MATERIA MEDICA.

By the Editor.

Chinese Cabbage oil, obtained from the seeds of a species of Brassica, according to R. H. Davies, has at 60°F. the specific gravity ·914; is of a deep brown color, somewhat thicker than olive oil, at 12°C. (10° F.) solidifies to a bright orange-yellow mass, and yields a rather dark colored elaidin. 100 grams of the oil required 0·125 gram caustic potash for neutralization, and 17·52 grams for complete saponification.

The mixture of fatty acids begins to soften at 17°C., melts completely at 22°C., has nearly the same saturating power as brassic acid, and contains oleic acid.—*Phar. Jour. and Trans.*, Feb. 7, 1885, p. 635.

According to E. M. Holmes this oil is probably obtained from the seeds of the petsai, Brassica sinensis, which is largely cultivated in China. The oil is employed as a purgative, and externally for skin diseases; also like a yellow colored brassica oil, which is probably obtained from Br. campestris, *Lin.*, the *aburana* of the Japanese. This oil is used for culinary and lighting purposes, in tobacco manufacture to prevent the leaves falling to powder after rapid drying, and for the manufacture of lampblack for use in making Chinese ink. The residue after the expression of the oil is used for manuring plantations of tea and other plants.—*Ibid.* p. 636.

Tea oil from Camellia oleifera, *Abel*, resembles olive oil in color, transparency and mobility, and has a characteristic odor and taste. Rob. H. Davies found it to have the spec. grav. ·9175 at 60°F., and placed in a freezing mixture to deposit a solid fat, probably stearin. The oil mixed with a drop of sulphuric acid, has a behavior similar to almond oil; nitrous acid solidifies it. It contains less free acid than olive oil. 1,000 grams of tea oil require for complete saponification 195·5 grams of caustic potash; the oleic acid obtained amounted to 83·15 per cent., and about 10·8 per cent. was probably stearic or palmitic acid; an insignificant amount of fatty acid was soluble in water. —*Phar. Jour. and Trans.*, Feb. 7, 1885, p. 634.

A specimen exhibited at the International Health Exhibition was labeled oil of Camellia japonica. It is used in Japan by watchmakers and as a pomade, combined with Japanese wax and flavored with oil of cloves and other essential oils; it is non-drying, very fluid, free from unpleasant odor and according to E. M. Holmes could doubtless compete with almond oil and olive oil for many purposes.

In China the oil of C. oleifera is used for culinary purposes and as a hair oil, and is an important article of trade. The seeds of C. Thea were recently offered in London under the name of *tanne*, meaning seeds; they contain about 33 per cent. of oil, 13·8 per cent. of starch and 1 per cent. of theine.—*Ibid.*, p. 637.

Myroxylon peruiferum, Lin. F.—Mr. P. Macewan has examined a sample of what he calls the oleo-balsam of the red oleo, *oleo vermelho*, of Rio Janeiro, the results differing in several respects from those obtained by Th. Peckolt (see "Am. Jour. Phar.," 1881, p. 334). In bulk the balsam was dark brown, and in thin layers dark red; its odor was smoky and feebly fragrant. On tasting it, a persistent choky and disagreeable feeling was left in the throat. The spec. grav. was ·915. Petroleum spirit dissolved 63·7 per cent., leaving a light brown pulverulent resin undissolved, and on evaporation left an amber colored, faintly aromatic residue, which gave a red-brown color with nitric acid; Peru balsam left an insoluble cohesive resin and the solution in petroleum spirit yielded a straw-colored fragrant residue, giving a yellow and pale violet-color with nitric acid. The oleo-balsam was completely soluble in alcohol and in ether, and partially soluble in carbon bisulphide, separating a flocculent brown resin which became adhesive to the sides of the vessel. The most marked difference between the two balsams is the behavior with sulphuric acid; on the subsequent addition of cold water to the mixture with Peru balsam, a beautiful violet color is imparted to the surface of the mass, while a gray color is produced with the oleo-balsam. The oleo-balsam has not the fragrance which is perhaps the most valued property of Peru balsam—*Phar. Jour. and Trans.*, March 21, 1885, p. 771.

Cultivation of Ginseng. Consul-general Aston has visited several of the numerous ginseng gardens near Songdo, Corea. The seed is sown in March; the seedlings are planted out in beds raised a foot above the level of the surrounding soil, bordered with upright slates and covered in from sun and rain by sheds of reeds 3 or 4 feet high, towards the north left more or less open according to the weather, and placed in rows with just room enough to walk between them. During the first and second year the plant has only two leaves and is frequently transplanted, in the fourth year the stem is about 6 inches high with four horizontal leaves, and in the fifth or sixth year the plant has reached maturity. Mould containing plenty of rotten leaves is the only manure used. The root is either dried in the sun or during unfavor-

able weather, over a charcoal fire; or to make the red or clarified ginseng it is placed in wicker baskets which are put in a large earthenware vessel with a closely fitting cover and pierced at the bottom with holes. It is then placed over boiling water and steamed for about four hours. The export of this quality of ginseng is a strict monopoly and death is the punishment for smuggling it out of the country. The annual amount exported to China is 202 piculs, valued at forty dollars a picul (133½ lbs.) The white ginseng is worth about half as much. It is the wild ginseng for which enormous prices are sometimes paid. —*Phar. Jour and Trans.*, March 7, 1885, p. 732.

Synthesis of homoquinine (see "Am. Jour. Phar.," 1885, p. 249). By decomposing homoquinine with caustic soda and determining the amount of quinine thus produced, B. H. Paul and A. J. Cownley obtained 41·4 per cent. of quinine and 58·6 cupreine. By mixing the ether solutions of cupreine and excess of quinine and after crystallizing, determining the surplus quinine, the same authors obtained in two experiments the following figures as representing the composition of homoquinine: quinine 37·20 and 39·08 per cent.; cupreine 62·80 and 60·92 per cent. From these results the proportion of quinine and cupreine in homoquinine seems to be as 2:3.—*Phar. Jour. and Trans.*, March 7, 1885, p. 729.

Vaccinium Arctostaphylos, Lin., Trebizond tea. From communications by E. M. Holmes and W. J. T. Dyer to "Phar. Jour. and Trans.," January 17 and March 27, 1885, it appears that this tea was first prepared about the year 1877, and became a commercial article in 1880. About 5,000 ocques (the ocque = 2¾ lbs.) are manufactured annually, the cost on the spot being about 5 piastres per ocque. The plant grows in Trebizond, Kroum and other parts of Asiatic Turkey, on mountains not below an altitude of 5,000 feet, and is not found beyond the mountains of Gummo hame. The tea is manufactured by Circassian planters in the province of Roum, and has the appearance and aroma of coarse black tea, but a sweet and somewhat less astringent taste. The best quality is yielded in May, several gatherings being made during the year. The leaf is much thinner than the true tea leaf, and could, Mr. Holmes thinks, be easily distinguished by a botanist from the true tea leaf when soaked in water, should the tea ever come into use as an adulterant of cheap teas.

MATERIA MEDICA OF THE NEW MEXICAN PHARMACOPŒIA.

By the Editor.

(Continued from p. 235.)

Ahuehuete, Taxodium mucronatum, *Tenore*, nat. ord., Coniferæ. From the cones of this Mexican tree, Dr. T. Noriega obtained a greenish yellow volatile oil of the density 0·8259, boiling at 130° C., and having an agreeable odor; with iodine it gives a slight explosion and evolves violet vapors. The fruit contains also a red-brown soft resin of a neutral reaction, but partly soluble in hot potassa solution. The bark is used as an emmenagogue and diuretic, and the leaves, topically, against itch and as a discutient; the wood yields a tar which is useful in skin diseases, and by dry distillation an empyreumatic oil is obtained similar to oil of cade.

Ahuichichi, Bryonia variegata, *Miller*, nat. ord. Cucurbitaceæ, grows in temperate regions and possesses dangerous drastic properties.

Aile de Mexico, a species of alnus, growing in mountainous regions, yields a bark having tonic and astringent properties.

Aje, or Axin, is a fatty substance produced by Coccus Axin, *La Llave*, a hemipterous insect living upon different species of Spondias and Xanthoxylum. In the fresh state the drug has a yellow color and a peculiar rancid odor, fuses at 35°C., is soluble in hot concentrated alcohol and in ether, is readily saponified, and on exposure is converted into a hard brown substance, insoluble in water, alcohol and ether. The natives of Uruapam form aje into masses weighing 350 gm. and enveloped in leaves of Indian corn. It is popularly used in erysipelas, as a discutient and vulnerary, mixed with various substances in hernia, and as a poultice in uterine complaints; in the arts it is used as an excellent varnish for wood and metals.

Ajo, Allium sativum, *Lin.*

Ajolote, Siredon Humboldtii, *Dumeril*, and other species, nat. ord. Batrachia. The flesh has analeptic properties, and the syrup prepared from a decoction of the skin is used by common people as a cure for pulmonary affections.

Ajonjolí, Sesamum orientale, *Lin.* The oil is used in place of olive oil, the seeds as a condiment, and the press cake as food for cattle.

Álamo, Populus alba and P. nigra, *Lin.* The bark is astringent; rarely employed.

Albahaca, Ocimum Basilicum, *Lin.*, nat. ord. Labiatæ. Cultivated in Mexico. It is a diffusible stimulant and stomachic.

Alcabucil. Cynara Cardunculus, *Lin.*, nat. ord. Compositæ. The unexpanded flower heads are used for food, and the florets for coagulating milk.

Alcachofa, Cynara Scolymus, *Lin.* The unexpanded flower heads are used for food. (These are the artichokes of Southern Europe, the preceding species being known as cardoon, the blanched tender stalks and ribs of leaves being eaten.)

Alcanfor del Japon, Camphor. Dose, 0·05 to 1·0 gm.

Alcaravea, Caraway. An infusion is made of from 5 to 10 gm. for one liter of water.

Alfalfa, Medicago sativa, *Lin.*, nat. ord. Leguminosæ. Emollient. Used for fodder.

Alfilerillo, Geranium Cicutarium, *Lin.* The herbaceous portion is used in decoction as an emollient.

Algodon, Cotton from Gossypium herbaceum and G. arboreum, *Lin.*, growing in Mexico, etc.

Alholva, Fenugreek. Cultivated in Mexico. The seeds are emollient.

Alhucema, Lavandula vera, *Lin.* The flowers are used as a perfume, and the powder as a sternutatory; internally as a stimulant.

Almáciga, Mastich. Balsamic stimulant and recommended in incontinence of urine. Dose, 0·60 to 2·0 gm. Used for varnishes, and dissolved in ether or collodion for filling carious teeth.

Almendra amarga and Almendra dulce, Bitter and sweet almonds.

Almidon, Starch, especially wheat starch.

Almizcle, Musk from Moschus moschiferus, *Lin.*

Alpiste, the fruit of Phalaris canariensis, *Lin.*, nat. ord. Graminaceæ. The plant grows in Mexico; the fruit is principally used for birds' food and the meal is employed as an emollient.

Alquimila del país, Geranium Hernandezii and G. mexicana, *Humb. et Bonpl.*, nat. ord. Geraniaceæ. It is incorrectly used as a substitute of the mildly astringent Alchemilla vulgaris, *Lin.* The plant is emollient and the juice is used as a laxative for children.

Altea. Marshmallow root. In Mexico, the root of Malva angustifolia, *Cavanilles*, is usually used in place of the former; it has identical properties, the mucilaginous principle being contained chiefly in the bark.

Alverjon, Pea, Pisum satisum, *Lin.* Used for food.

Amapola, the petals of Papaver Rhœas, *Lin.*, which grows in Mexico. From 2 to 5 gm. are used for 1 liter of infusion.

Ámbar amarillo, Amber; antispasmodic; rarely employed.

Ámbar gris, Ambergris; rarely used as an antispasmodic. Dose, in powder, 0·25 to 1·0 gm., of the tincture, 20 to 60 drops.

Ámbar del país, the exudation of Hymenæa Courbaril, *Lin.*, nat. ord. Leguminosæ, growing in the State of Oaxaca, and known there as *cuapinole*. The resin is bright yellow, internally transparent, superficially of an efflorescent appearance, brittle, with a glossy fracture, of a delicate aromatic odor and resinous somewhat astringent taste, soluble in alcohol, ether, fats, and volatile oils, burning with flame and then forming drops of a balsamic odor. It is distinguished from true amber by becoming sticky with a little alcohol or ether. It is used in the manufacture of varnishes, and as fumigation for the relief of asthma. The bark is said to be purgative, and a decoction to be useful as a vermifuge. The tincture is employed like that of guaiacum.

Ambarina, Scabiosa atropurpurea, *Lin.*, nat. ord. Dipsaceæ. The plant is cultivated and is commonly used in itch and other skin diseases; it has tonic and sudorific properties, but is not used medicinally.

Amianto, Asbestos; used for filtering acids and alkalies.

Amole de bolita, Sapindus amolle (?). The flowering tops and fruit may be used like saponaria, according to Oliva; they contain considerable saponin.

Amole de raíz, Agave mexicana, *Lamarck*, nat. ord. Amaryllidaceæ. The juice has emmenagogue, diuretic and laxative properties, and is externally used against itch. The root is useful for washing clothes.

Amor seca, Gomphrena procumbens, *Lin.*, nat. ord. Amarantaceæ, one of the so-called "everlastings," is indigenous to the central table land of Mexico and has a tonic, astringent and diaphoretic root.

Anacahuite, Cordia Boissieri, *De Cand.*, nat. ord. Boraginaceæ, is found in the mountains of Tampico; the wood is commonly regarded as being pectoral, and medicinally used as an emollient.

BROMIDE OF ARSENIC FOR PIMPLES is recommended by Dr. Piffard, who uses a one per cent. solution, of which one or two minims are to be taken in a wineglassful of water three times a day, on an empty stomach. The dose is to be diminished as the pimples begin to disappear.—*Med. Age.* That such a solution contains HBr and As_2O_3 was shown in Am. Jour. Phar., 1883, p. 226.

THE GAMBIER OF JOHORE.[1]

By Peter Macewan,

Secretary in Scotland to the Pharmaceutical Society.

(Including Notes by Mr. Robert Jamie, late of Singapore.)

In the Edinburgh Forestry Exhibition, the Maharajah of Johore exhibited an interesting collection of the products of the territory which he governs. The articles of pharmaceutical interest included in the exhibit were Gambier, Baros or Borneo camphor, and india-rubber, and these have already been briefly referred to in the "Pharmaceutical Journal" ([3], xv., 266). The specimens of gambier and baros camphor were presented to the Edinburgh Museum of Science and Art, the director of which (the lamented Professor Archer) presented two sets of duplicates to the Pharmaceutical Society.

There is little or nothing given in Pharmaceutical literature regarding Johore products, and for this reason these notes may not be devoid of interest. Moreover, the State is likely to be of some importance in commerce, from the fact that in recent years its resources have been greatly developed by the encouraging example and influence of the enlightened Maharajah. The Johore territory is some twenty thousand square miles in extent, and it is for the most part covered with virgin forest which has been only partially explored. The population, consisting of Malays and Chinese, numbers one hundred thousand. Its principal exports are, in addition to timber, cutch, black pepper, gambier, dammar, and recently india-rubber, the production of which is entirely due to the Maharajah. The Johore Steam Mills Company has done much to open up the country, and the Maharajah takes full advantage of European influence and enterprise. Mr. J. Meldrum, F.R.G.S., who acted as his commissioner at the Forestry Exhibition, is closely associated with him in the development of trade.

The following extract from a letter received from Mr. Jamie is of interest: "About Johore and its forest extent, I may say that the native State of Johore is almost one impenetrable vast forest, extending from the British possession, Malacca, to the extreme point of the Malay peninsula, Point Roumania, bounded on the northeast by the native States of Pahany and Tringanan, and up to this time very imperfectly explored. For many years the Chinese have been cultivating various vegetable products, such as earth-nuts, sweet potatoes, etc. (sugar cane is grown, but this chiefly for chewing purposes); but what has cleared most of the forest has been the cultivation of gambier and pepper, which is principally done by the Chinese, and very successfully, too. These products are being largely increased every year, in fact, they may be said to be the principal products as yet. Within the past few years large tracts of the forest have been cleared out and many fine and very valuable timber trees destroyed to allow of coffee being cultivated, especially the Liberian kind, which it is hoped will turn

[1] Read at an Evening Meeting of the North British Branch of the Pharmaceutical Society, March 18, 1885.

out remunerative to the cultivators. Tapioca is also cultivated to a small extent, so is the tea plant; this latter chiefly by His Highness the Maharajah himself. The territory of Johore is every year being better known as explorers advance."

Regarding the forests, Mr. Meldrum remarks: "The magnitude and grandeur of the forests may be viewed from the summit of the mountain *Gunong Pulai*. * * * As far as the eye can reach, nothing can be seen but trees. There are no less than three hundred and fifty different kinds of wood shown in the Forestry Exhibition, all from the Johore forests."

Gambier Production.—The cultivation of gambier in Johore does not differ from the method pursued in the Straits Settlements, that is to say, it is cultivated along with black pepper. On this point, Mr. Meldrum[1] says: "Black pepper * * * is invariably grown by the gambier planter (always Chinese), as he can use the spent leaves of the gambier plant to manure his pepper vines. The prices of gambier and black pepper have been good for some time past, partly owing to the war in Atcheen and partly owing to the difficulty of procuring forest land for new plantations. The straits and countries near appear to be specially adapted for the growth of gambier." The plant cultivated is presumedly *Uncaria Gambier*; whether other varieties are under cultivation or not is doubtful. Here I may quote from the "Kew Report," for 1881, an item of some interest:

"*Uncaria Gambier.*—Dr. Trimen, director of the Royal Botanic Gardens, Peradeniya, writes (September 24): 'In the urgent demand for raw products here, I tried to make some gambier from our plant. It grows, commonly, not far from the garden. I followed the account given in the books, but could not succeed in producing the correct article. A very excellent astringent extract is easily obtained, but it is black like liquorice or the *Acacia Catechu* extract, and not at all like *Terra japonica*.' * * The Ceylon plant is not the same, as Dr. Thwaites at first supposed; it is *Uncaria dasyoncura*, var. *Thwaitesii*, and this, as Dr. Trimen points out, may account for the different properties."

A lucid description of the manufacture of gambier is given in "Pharmacographia,' and from the same source we learn that the gambier industry was begun in Singapore (an old Johore possession) as early as 1819. Since then it has developed enormously in the Straits Settlements and surrounding countries. Thus, in the north and northwest of Borneo, the industry in the hands of the Chinese has been most successful, the value of the product exported in 1882 from Sarawak to Singapore being 118,351 dollars. The value of gambier annually imported into Great Britain is fully half a million pounds sterling. I endeavored from blue books and similar sources to get some information as to the amount of gambier produced in Johore, but failing in this I applied to Mr. Jamie, late of Singapore, and he has sent me a most interesting letter from which I may quote:

"To say what the value of gambier and pepper annually sent out from

[1] In a lecture on "The Johore Forests." For these references and other information I am indebted to Mr. Walter Clark, of the Edinburgh Museum of Science and Art, whom I warmly thank.

Johore would be, I could not; but I know that many thousands of piculs (133⅓ lbs.) of both are sent to Singapore, from whence it is shipped to all parts of the world. Singapore is separated from Johore by what is called the 'Old Straits,' about three-quarters of a mile wide, and Johore being so close to that city (Singapore), the imports and exports may not be kept separate, which may account for your not seeing the exact returns in blue-books or consular reports, though I am inclined to think they are kept, but may not be published as from Johore. * * * Cube gambier is the kind most generally preferred for export, and can be procured in various qualities according to price, that is either pure or adulterated.[1] Gambier for chewing is made in disc and pipe form. The latter is in short thin sticks like the drawing in your letter, and can generally be got pure in either the Johore or Singapore bazaars. Gambier is also made in cake or mass, and it is worth 5·55 dollars per picul at Singapore. No. 1 cube gambier, 6·85 dollars and No. 2 cube, 6·25 dollars per picul."

The Johore gambier of the Forestry collection is of five kinds: three of cube form, one disc shaped and the other oblong (*parallelopiped gambier*). One of the cube specimens (which proved to be the best of its kind) is labeled "Gambier, *Makan*, for eating." The oblong variety is designated "Gambier, *Paku*." The disc-shaped kind is stated to be "first quality, for eating."[2]

The following details regarding the specimens have been ascertained:

Cube Gambier. First Quality ("Makan").—This is in fairly regular cubes, average measurement 26×24×22 millimetres. It is light, the average weight being 8·475 grams (heaviest, 8·78; lightest, 8·08). The external color is cassia brown "marled" with a darker brown. Appearance of fusion at the edges is slight, fused parts having been cut off. Internally the color is pale cinnamon-brown. The mass powdered readily, with a crumbly feeling and without grittiness. On incineration, 3·96 per cent. of ash was obtained, and by Löwenthal's process, 32 per cent. of "tannin" (calculated as gallotannic acid) was indicated.

Second Quality.—In badly formed irregular cubes. Average measurement 26×25×24 millimetres. Average weight 13·53 grams (heaviest, 14·45; lightest, 12·17). The surface is in a fused state, so that the color is brown-black; internally, however, it is cinnamon-brown. Denser and harder than first quality, hence not so readily reduced to powder. It yielded 4·48 per cent. of ash, and 30 per cent. of "tannin."

Third Quality.—This is in well-shaped cubes, but surfaces more uneven than first quality. The cubes are slightly smaller than first quality. Average 25×23×22 millimetres, but they are much heavier, the average

[1] "I mean 'pure or adulterated' commercially speaking. Gambier, as prepared by the Chinese, can never be absolutely pure. The plant grows trailing along the ground, and unless the leaves and stems which are cut off be washed before being put into the boiling caldron, the extract must contain more or less earthy matter. Few Chinese wash the leaves, and the straining of the decoction is of the roughest description. Merchants buying gambier have a rough and ready method of judging what they consider standard quality; below that quality less is paid, because it contains earthy matter *intentionally added* to make it weigh.—R. J."

[2] "Makan," vernacular for "eating or chewing." "Paku," a nail.

weight being 10·24 grams. The color externally is dull brown; internally, pale brown to yellow-brown. Admixture of woody matter is apparent. The powder obtained from it is gritty, due to inorganic matter. 10·76 per cent. of ash was obtained from it, and the "tannin" content is 19·7 per cent.

As affording an indication of how these specimens compare with the gambier of pharmacy, I give particulars of two samples which happened to be the first which I came across, but I hope that they are not of the nature and quality generally found. Let me call them A. and B.

A. is in badly formed pieces. Externally the color is dark brown from fusion; internally, a good cinnamon-brown. Somewhat tough to powder, but not gritty. It yielded 4·5 per cent. of ash and 15·6 per cent. of "tannin."

B. in well-formed cubes. Brown color externally, no fusion marks. Pale cinnamon-brown internally. Difficult to powder and gritty. It yielded 17 3 per cent. of ash and 9·13 per cent. of "tannin." I could not detect starch in the samples.

Passing on now to the masticatory gambiers (so called from the fact that they are used as masticatories instead of betel nut),[1] the peculiar shapes attract attention. The forms, though rarely seen by the pharmacist, are not new. Pereira, in his "Materia Medica,"[2] describes them; the oblong as *gambier of the second quality* (Bennet), and the cylindrical as the *third quality*. Of an oblong specimen,[3] which he received from Professor Douglas Maclagan as *yellow gambier in parallelopipeds*, he states that "the length of the prisms is 2 inches; the size of the terminal faces ½ an inch square. In other respects the oblong variety agrees with the square kind." Of the cylindrical variety he remarks, "This occurs in circular discs, or short cylindrical pieces, the length of the cylinder being only about ½ of an inch, whilst its diameter is about 1¼ inches. * * * The color internally is pale, dull, pinkish yellow; externally being a shade darker."

The Johore parallelopipeds have only about half the measurements of Pereira's specimen, and the color is of a uniform dull brown externally, and drab internally. It is exceedingly hard and stony. On attempting to incinerate a small piece it failed to fuse and swell up, as even the worst sample of gambier will; it only became black. Powdered, it incinerates with difficulty, the yield of ash being 60·6 per cent. The "tannin" content is small, viz.: 2·08 per cent. Its taste is mildly astringent and sweetish. When chewed exceeding grittiness is felt between the teeth; this is due to a large admixture of sand, which is deposited when the powdered "gambier" is treated with hot water. This variety probably fulfills the same functions for the embryo betel-nut eater as the mild cigarette fulfills for the juvenile smoker.

The cylindrical gambier is a little larger than Pereira's specimen. The

[1] "Gambier is also used *along with betel nut*, sirih leaf and lime. The leaf is that of a vine (Chavica species), grown very much as pepper, and is chewed by Malays, Siamese and many other Eastern people. On this leaf is spread a little lime and tobacco, gambier and pieces of betel nut.—R. J."

[2] Third edit., vol. ii, part ii, p. 1685.

[3] These and other specimens described by Pereira are in the Pharmaceutical Society's Museum, London.

average diameter is 37 mm. (about 1½ inch) and thickness, 6 mm. It also differs from his in the density; his sank in water, but the Johore variety is very light and floats on water. The average weight of the discs is 3·28 grams (heaviest, 3·94; lightest, 2·85). The color approaches Pereira's description, the lower surface being darker, if anything, than the upper. A peculiarity of the Johore discs is the ring markings on the surface. Some have two, others one ring only, about a third of an inch from the edge, and the same distance apart when there are two. The one ring marking gives the disc the appearance of a cortical layer, such as we see in calumba root for instance. One piece is marked on the top surface with three transverse parallel grooves, but this appears to be accidental. This gambier incinerates easily *and yields only* 1·63 *per cent. of ash*, light in weight and milk white. The "tannin" content is 20 per cent. The small percentage of ash is remarkable. Flückiger and Hanbury[1] incinerated some fine gambier in regular cubes and obtained 2·6 per cent. of ash, and this is given, I presume, as a very low percentage.

These specimens are quite different from those mentioned by Pereira. The disc-shaped specimen is particularly rema kable, owing to its small percentage of ash and low "tannin" content. Yet I have failed to detect any adulterant in it. It would appear to have been prepared with unusual care and from clean leaves, the explanation of the low "tannin" content being that the decoction has not been subjected to prolonged boiling, which favors decomposition of catechin, catechu-tannic acid being one of the products of decomposition. The cube gambier is of good quality; all are apparently equally soluble in boiling water, so that this test afforded little indication of the quantity of inorganic matter present. It would be well if a maximum of ash were also given in the forthcoming pharmacopœia. Mr. Jamie informs me that a very light clay or earth (which is eaten by the natives) is used for adulterating gambier, and that adulteration with starchy matter is rarely or never resorted to. The latter adulteration would give the makers too much trouble; hence they resort to the more handy clay. A sample of lozenge gambier (supposed to be amylaceous) which I have examined contains no starch, but abundance of a fine light earth, such as tripoli; yet the specimen floats on water.

The figures which I give for "tannin" are not to be taken as an absolute indication of the catechu-tannic acid present. They are comparative and are given as gallotannic acid, owing to the uncertainty attached to values given for the "tannin" of gambier.

The authors of "Pharmacographia" do not state the percentage of "tannin" in gambier. Mr. Thomas Christy ("New Commercial Plants and Drugs," Part V., pp. 40–41) gives 36 to 40 per cent. and 44·88 per cent. (on the authority of Esenbeck). Mr. John Watts (ibid., p. 50) says: "Gambier and cutch with your apparatus [Ramspacher's tannometer] give over 40 per cent, while gambier gives with gelatin 20 to 25 per cent., and cutch about 30 per cent." Comparing the Johore cube gambiers with these figures they stand out very favorably, while the two commercial samples which I have examined are very bad.—*Phar. Jour. and Trans.*, March 28, 1885, pp. 793–795.

[1] "Pharmacographia," first ed., p. 301.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

American Medicinal Plants; an illustrated and descriptive guide to American plants. By C. F. Millspaugh, M.D. New York and Philadelphia: Bœricke & Tafel. Nos. 6 to 10. Price, $5.

This is the second fascicle of a work, which we have noticed on two occasions, in 1882 and 1884, when its scope and general make-up was considered. The fascicle now before us contains 30 plates, with the requisite letter-press. Many of the plants figured, like Taraxacum, Senecio, Scrophularia and Cephalanthus, are common in most parts of the United States, while Gelsemium represents the South, Anemone Nuttalliana the West, Thuja the Northern section, Ranunculus acris the naturalized plants and Fagopyrum the cultivated plants. The plates are handsomely executed, and the coloring is as nearly true to nature as may be reasonably expected; occasionally some of the details have not received full attention, as in the case of Podophyllum, the rhizome of which has, as a rule, the rootlets in tufts at the end of the annual shoots, but rarely on the lower and thinner portion, and in Geranium maculatum, the flowers of which have 10, not 12, stamens. The botanical dsscriptions are pretty full and accurate. The work deserves the attention of those interested in medical botany.

The Microscope in Botany. A guide for the microscopical investigation of vegetable substances. From the German of Dr. Julius Wilhelm Behrens. Translated and edited by Rev. A. B. Hervey, A.M.; assisted by R. H. Ward, M.D., F.R.M.S. Illustrated with 13 plates and 153 cuts. Boston: S. E. Casino & Co., 1885. 8vo, pp. 466. Price, $5.

This is a most valuable addition to the works on microscopy published in the English language. It opens with an introductory chapter devoted to the history of the microscope and its gradual perfection, and to the manner in which microscopical work and investigations should be conducted. The pertinent advice given at the close of this chapter applies with equal force to scientific work in general, and culminates in the following four indispensable characteristics, necessary for reliable investigations, namely, a skillful hand, good eyes, a tranquil mind and self-knowledge, the latter being, perhaps, the most important. About 140 pages are next devoted to the consideration of the compound microscope, its various parts and accessories, all of which are fully and clearly described, their uses explained and amply illustrated. Then follow about 110 pages on the preparation of microscopic objects, including softening of tissues, cutting in various ways, clarification, mounting and drawing of sections, labeling and storing of preparations, and examination of living organisms.

The fourth chapter treats upon about 45 pages of the various microscopical reagents, inorganic as well as organic, including among the latter the various staining liquids. The concluding chapter on the microscopical investigation of vegetable substances occupies over 140 pages and discusses the composition of the walls of different kinds of tissue and the various cell contents with the means of recognizing the tissues, incrustations and contents under the microscope.

This brief synopsis will indicate the scope of the book before us, which is eminently practical. The text is so clear and attractive in style, as to become inviting to experimentation and research. This is particularly the case with the third and fifth chapters, in which the earnest student will find a vast amount of facts and suggestions that will render material aid in the practical performance of the delicate operations which must be mastered in order to become proficient in the histological investigation of plants. The translators and editors have done their part well and made numerous additions, more particularly relating to American microscopes as compared with the Continental and English styles, and to various tools, methods and other practical points valuable in the prosecution of microscopic work.

The book is printed in clear type upon good heavy paper; the illustrations are unexceptionable; numerous references to the literature on the various subjects will be particularly appreciated by special students, and all who consult the work, will appreciate the full index which leaves little to be desired.

Tracts on Massage, No. 1. The art of massage. Translated from the German of Reibmayr, with notes by Benj. Lee, A.M., M.D., etc. Philadelphia, 1885. 8vo, pp. 40. Price 25 cents.

This is the first of a series of publications, which will contain the substance of a treatise of Dr. A. Reibmayr, of Vienna, with notes by Dr. Lee, based upon an acquaintance of 25 years with massage, "the latest handmade of medicine."

Untersuchungen aus dem Pharmaceutichen Institute der Universität Dorpat. Beiträge zur gerichtlichen Chemie. Von Prof. Dr. G. Dragendorff. St. Petersburg, 1884. 8vo, pp. 73.

Researches from the Pharmaceutical Institute of the University of Dorpat. Contributions to forensic medicine.

The investigations comprise the conditions under which a number of medicinal agents may be recognized in the animal body, and the complications which may arise from their presence in the analyses of food, etc., for poisonous substances. The researches have been made by students of Prof. Dragendorff under his supervision and embrace quinidine and cinchonidine; the alkaloids of the berberidaceæ; berberine, oxyacanthine and hydrastine; coffeine and theobromine; morphine; the alkaloids of chelidonium; lycaconitine; picrotoxin; santonin; colocynthin; elaterin and strychnine.

Bericht über die Thätigkeit im Pharmaceutischen Institute der Kaiser. Universität Dorpat in der Zeit vom 1. *Jan.* 1865 *bis* 31. *Decbr.* 1884, *von dem derzeitigen Director Prof. Dr. G. Dragendorff.* St. Petersburg, 1885. 8vo.

Report on the activity in the Pharmaceutical Institute of the Imperial University of Dorpat from Jan. 1, 1865 to Dec. 31, 1884.

This report covers the time during which the indefatigable Prof. Dragendorff has been in charge of the Institute named above, a period of twenty years marked by well directed and efficient labor. During the time men-

tioned the number of students at the University has increased from 560, including 146 medical and 35 pharmaceutical students, in the beginning of 1865, to 1,595, including 671 medical and 120 pharmaceutical students at the close of 1884. During the same period the number of laboratory students has increased from 72 in 1865 to 330 in 1884, and in connection with this increase it should be mentioned, that it is largely due to medical students making use of the opportunities afforded at this laboratory; for while in 1867 there were 34 medical and 57 pharmaceutical students, or a proportion of 100 : 168 working in the laboratory, the numbers in 1884 were 225 medical and 105 pharmaceutical students, the proportion being 100 : 47. The pamphlet gives also accounts of the growth of the collections, the arrangement of the laboratory and of the work done therein and contains the titles of 278 books, pamphlets and essays, published during that time by the director and his pupils, the investigations for nearly the whole number having been made in the laboratory of the Pharmaceutical Institute.

Neue Ideen. Von Mr. Ad Vomácka. Leitmeritz, 1885.

New Ideas.

The object of this little pamphlet, which is a continuation of a larger one entitled "Handverkaufs-Artikel," is to furnish formulas for new preparations and specialties making their appearance, and thus to enable the pharmacist to supply his own products to his customers, for which purpose suitable labels have been prepared by the author, and these may be procured in case the sales do not warrant the expense incidental to the designing and printing of distinct labels. All plans aiming at making the pharmacist the purveyor of his own products, instead of the products of others, deserve commendation.

Massage, the latest handmaid of medicine. By Benj. Lee, A.M., M.D., Ph.D. From Transactions of the Medical Society of the State of Pennsylvania. Pp. 12.

A clinical illustration of the value of combining motion with extension in the treatment of diseases of the hip joint. By Benj. Lee, M.D., etc. From the same Transactions.

The treatment of diseases of the skin by novel means and methods. By John V. Shoemaker, A.M., M.D., etc. Read before the International Medical Congress at Copenhagen, August 12, 1884.

Cumberland Almanac for 1885. Issued as a supplement to the Nashville "Journal of Medicine and Surgery," 1885.

The advertising sheet of this Almanac praises a number of nostrums.

TARTARALINE, as sold by grocers in Great Britain, was found by P. MacEwan to be acid potassium sulphate. Subsequently Mich. Conroy met with *cream of tartaraline*, a mixture of the former salt and potato starch, the latter having evidently been added with the view of reducing the strongly acid salt to a strength about equal to that of cream of tartar.—*Phar. Jour. and Trans.*, November, 29, 1884, p. 434.

MINUTES OF THE PHARMACEUTICAL MEETING.

PHILADELPHIA, May 19, 1885.

Mr. Robbins was called to the chair, and it was moved to omit the reading of the minutes of the last meeting.

The Formulary of non-officinal Preparations of the District of Columbia, and the Extra Pharmacopœia of Martindale & Westcott, Second Edition, London, 1884, were presented by the Registrar on behalf of Prof. Maisch, who was absent from the city.

A handsome collection of rare drugs was exhibited, which were received last week from Prof. Herrera, of Mexico. Notices of them will be given in the "Journal of Pharmacy" as soon as practicable. The list of them is as follows:

Mexican valerian; Hibiscus Sabdarifa, *Linné*; Croton Adenaster? the herb; Veratrum frigidum, *Schlechtendal*, fruit, rhizome and bulb; Mammee-Sapota, Lucuma Bonplandii, *Kunth;* Yerba del Pollo; Elæis melanococca, *Martius* (seed and expressed oil); Anona Cherimolia, *Miller* (seed); Anona glabra, *Linné* (seed); Erythrina coralloides, *De Candolle* (seed); Cantharis quadrimaculata; Cantharis eucera; Meloe tridentatus; Myroxylon Pereiræ, *Klotzsch* (legumes).

There was also exhibited a very interesting collection of drugs from Central America, which was donated by our fellow-member Mr. Wm R. Warner. The collection contains the following:

Verbena (Stachytarpha jamaiciensis, *V.*); Balsa fruit, China root; Contrayerba (Dorstenia Houstoni, *Miller*); Banana Root (Musa sapientum, *Lin.*); Cevadilla (fruit and seed), Asagræa?; Lengua cerna (fleshy branches); Siempre Viva (leaf and flower, fresh and 3 years old); Zacate limon (species of Andropogon).

The thanks of the College was voted to the donors of these specimens.

Mr. Wallace Procter exhibited a specimen of *Crystallized Glycerin*, and read a paper descriptive of the same. The paper was referred to the Publication Committee (see page 273).

A specimen of *False Cubebs* was exhibited; it was sent to this city from New York. It contains about seven per cent. of volatile oil. When cut open the seed appears much more fully developed than in good commercial cubebs and the powder has an aromatic odor reminding one of mace. A description appeared in the "Pharmaceutical Journal and Transactions," but the botanical origin of the drug is not yet ascertained (see page 302).

Mr. Blair exhibited a specimen of *Syrup of iodide of iron* made after the formula of the present Pharmacopœia, which had been exposed to direct and diffused daylight for two years past and was in good condition.

On motion, adjourned.

THOS. S WIEGAND, *Registrar.*